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EDITED BY

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President of Clark University and Professor of Psychology and Education.

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THE

PEDAGOGICAL SEMINARY.

Founded and Edited by G. STANLEY HALL.

VOL. VII. APRIL, 1900. No. 1.

EDITORIAL.

With the new volume seven, which begins with this number, the editor shares its control with a distinguished list of co-operating editors from whose aid material improvement is to be hoped for.

In the first article Professor Barnes presents a brief study, admirably based like all his work on large numbers of children, from which he is able to make interesting comparisons of the ideals of London children with those of California, whose ideals he had previously studied.

In the second and longest article, Mr. Small presents the results of the fullest and most comprehensive study in recent times known to the editor on the relations between society and solitude. He collected the experiences of many writers distinguished as recluses, isolated himself in the forest for some time, gathered experiences from children and adults, went over prison records and those of feral men, and treats of the pets, productions, imaginary companions, occupations, and educational values of isolation.

Professor Burnham summarizes with characteristic discretion and thoroughness recent literature and present practices of health inspection in schools, with a candid discussion of recent methods and objections, and a valuable bibliography.

Professor Hodge prints a second article on the foundations

of nature study, dealing mainly with fundamental principles of education and conditions, which will probably be followed by a third and last article discussing present principles and methods with classifications and characterizations of well known authors and text-books.

A brief study of the imagination in children, especially in doll play, child literature, number forms, and the sex of numbers, comes from Prof. Gale's Psychological Laboratory in the University of Minnesota, with a unique cut illustrating time forms with bibliography.

Dr. Meyer, probably the leading expert in this country on the psycho-physiology and physics of music, presents views on the mode of teaching music in the public schools that, although they will impress many as radical, cannot fail to command respectful attention.

Professor Monroe follows with a brief article illustrating children's rights and altruism.

Mr. Irving makes an interesting contribution to our knowledge of school children's home reading.

Brief book notes on about fifty publications, by the editor, conclude the present number.

It is worthy of note that articles on child study have become so numerous, and especially that their scientific quality has so improved, that some of the best have been and more are likely to be printed in the *American Journal of Psychology*, which is older than the *Seminary* and aims to be more scientific, but has the same chief editor and publisher.

CHILDREN'S IDEALS.

By Earl Barnes.

Some three years ago Mrs. Estelle Darrah-Dyke, who was at that time an Instructor in the Department of Education in Stanford University, California, began gathering papers written by American children with a view to making a study on their ideals. The children were simply asked, as a regular piece of composition work, to answer the question: "What person of whom you have ever heard or read would you most like to resemble? Why?" Miss Darrah gathered about 700 papers written by California children, and an equal number written by children in the city of St. Paul, Minn., some 1,500 miles away. The answers in the two sets of papers ran so closely on the same lines that they were massed together in a common study. The results of this study were published in the Popular Science Monthly for May, 1898.

A year or two later I used Mrs. Dyke's test in England with a view to presenting a parallel and comparative study on London children. In this paper I shall first present the results of the English study, quite independently; and shall then point out the important lines of similarity between it and the American study.

In gathering the materials for the English study we asked the children: What person of whom you have ever heard or read would you most wish to be like? Why? Some of the children had difficulty in understanding the word "resemble" which was used in the American test. It is true the word "like" has a double meaning, but an examination of the papers shows that very few of the children were misled by it; probably not more than one or two per cent. We have gathered and worked up 2,100 papers from Board Schools in London, that is from schools supported and directed by the State and attended by the children of laborers, mechanics, and small shopkeepers only.

Most of the papers were gathered through the efforts of the members of the British Association for Child Study; and from them I have had much assistance in the way of suggestions and criticisms in working up the results. To Mr. H. Holman, at that time President of the Association, and one of Her Majesty's Inspectors, I am under especial obligations for assistance

in gathering papers directly from the children where they were absolutely free from any suggestion.

A stream cannot rise above its source; and such a study cannot rise above the value of the individual papers on which it is based. What then is the value of our evidence? Of course there are some papers, especially from the younger children, which are crude to the last degree. Take, for instance, "Moter cod she jase," which has been translated by an ingenious primary teacher into "Mother, because she jaws;" that is to say: "I should like to be like my mother, because she runs things." Even with this far-fetched interpretation such evidence has little value, and if there were much of it the study would have little value. Practically there were only six papers difficult to read or understand in the 2,100 examined. There was a larger percentage from children who wandered in the mists of intelligence. Such are the boy of eight who wanted to be like "Morses because he done something;" or the other boy of eight whose ideal was "Mrs. Goodey because her sister was a kind girl." More intelligible is the child who says: "Queen Victoria, because she is very grateful." He simply attaches a verbal virtue which he, as one of the masses, has been told was desirable to a verbal personage whom he has been taught embodied all perfection. Still more intelligible is the boy who wished to be like "Lord Nelson, because he had one of his eyes pierced with an arrow and one of his arms cut off." Does this not mean: "I want a brave and adventurous life?" In dwelling on these answers we are giving a wholly wrong impression of the evidence as a whole. Such papers represent less than one per cent. of the 2,100 examined. In all studies on groups of children such papers are found and the superficial critic seizes on them and orders all the evidence out of court.

The following papers represent the general average of the evidence; they are neither the poorest nor the best:

A boy (13): "I should like to be J. Smale because he has 3 pony and two horses he as got a good green grocers round and he takes about eight pounds ten shilling on Saturday."

A girl (12): "My mother, because she is kind and humble and she is a proper housewife she is not like some mothers out all day long and row when she comes home. She works very hard for the sake of the little ones at home. She is also very gentle and keeps us children very clean and respectable, however poor she may be."

A girl (13): "The person I most wish to be like is my grandmother, because she is kind and gentle, and she lives many miles away, in Norfolk. She is happy and so rich. When I go down their, she treats me so kind as if I was her only daughter. I wish I could be like her because of her riches and living in the open country and on sunny days go and pick flowers and water the garden and be like a lady sit still and do nothing all day but to enjoy yourself and keep your home clean and keep your clothes clean and keep your husband clothes clean and the little children as well."

Another girl of the same age: "My uncle. Why because he lives in an oil shop and if any one came in the shop I could serve them and another thing I cannot say anything wrong about him and he is very kind to me and all my sisters and my brothers and is kind to his own children and one day when my father was ill in bed my sister emmer come and brougt her little boy and my uncle come and gave me a shilling and my sisters boy a shilling."

A girl (11): "I should like to be like my cousin Maud, because she is the only child, and is treated so well, and has so many toys and playthings. Another reason is because she lives in the country, and she has part of her father's garden and goes to the seaside for a long time every holiday time."

This is a pathetic answer from a girl of thirteen: "I should like very much to be like a girl who can do all her work perfectly, so that I could do my work just as well and when you can do your work there is such a difference in a girl who can do her work and one that cannot do it at all and the better you do your work the better your get on in life."

There is every indication in this last little paper, in penmanship and in lack of punctuation and organization that the girl stood at the foot of her class and wrote from the depth of her heart. As a whole, the papers presented have a wholesome ring of truth in them. As evidence, I believe them superior to the testimony ordinarily accepted in police courts or petty civil courts, here or in England.

Accepting the evidence now as fairly representative of what the children wanted to say, let us see what quantitative results we can reach by analyzing it. Out of the papers studied, 15% of the boys and 3% of the girls give no intelligible answer, most of them returning the paper blank.

If we look at the movement from age to age the per cents. read:

Age,	8	9	10	11	12	13	
Boys,	15	32	19	9	8	5	per cent.
Girls,	1	7	4	4	1	3	per cent.

Two things are striking in this list of figures. First, there are five times as many boys as girls who fail to answer; secondly, the children nearly all answer at eight, while at nine many of them fail to do so, and after that the number of those who fail to answer grows gradually less year by year. These two facts seem to me to be due to the same cause,— girls are more obedient than boys, they do what they are told to do; children of eight are also obedient, they try to do whatever they are told to do. At nine, they see the difficulty and fall off; later they become increasingly able to express an answer satisfactory to themselves. Children answer when they must or when they know.

About 8% of the children, instead of naming some person, name some general class like bakers, or teachers, or good men.

These answers form a strand of selection of no particular significance for this study.

Under the heading "Acquaintance" we included all those whom the child knew personally. Two special sub-groups were kept out for individual study, "Father and Mother," and "Child Acquaintance." Let us deal with these sub-strands first. 5% of the boys and 3% of the girls select the father or mother as their ideal. The boys choose the father and mother equally, while nearly all the girls choose the father. The number of those making this household choice decreases gradually with advancing years. 3% of the boys and 5% of the girls choose some child acquaintance. This choice also belongs mainly with the younger children and disappears as they grow older.

Uniting all the acquaintance choices we find that 24% of the boys and 32% of the girls select as their ideal of life some person in their immediate circle of acquaintances. It is interesting to see how these answers are distributed through the ages from 8 to 13 inclusive.

Ages,	8	9	10	11	12	13	
Boys,	42	40	26	11	16	15	per cent.
Girls,	49	51	37	27	18	14	per cent.

As will be seen, this line of tendency is a steadily vanishing line. It marks the abandonment by the child of his local neighborhood dreams because he is reaching out for a new world of men.

This larger world is found under the next heading, "Historical or public characters." Here again we have found it convenient to keep out certain particular strands for closer study. They are: "Queen Victoria," "Florence Nightingale," "Gladstone," "Nelson," "Wellington." Let us examine these lesser strands first.

Queen Victoria is a most popular character, being chosen by no less than 8% of all the boys and 18% of all the girls. Florence Nightingale is chosen by 3% of the girls; Mr. Gladstone by 5% of the boys and 2% of the girls; Nelson by 8% of the boys and 2% of the girls; and Wellington by 2% of the boys. It is surprising what a small range of public characters are named. Apparently the popular heroes of the day and the great men and women who have made England's name glorious have no very intimate place in the hearts of the Board School children of London.

If now we take all the historical and public characters together we find that they are chosen by 41% of the boys and 32% of the girls. And again it is interesting to see how they are distributed by ages:

Ages,	8	9	10	11	12	13	
Boys,	17	17	34	50	60	69	per cent.
Girls,	26	14	21	40	46	44	per cent.

This is distinctly a growing strand of consciousness, or of choice. It marks the broadening out of the personality, and the substituting of larger political, social, and world dreams for those of the home and the neighborhood.

One is surprised to find how very few literary characters are chosen by these children. In all such choices include only 2% of the boys and and 6% of the girls. Even these are rarely literary characters in any true sense of the word. They are generally people who have written literature, while the great mass of possible ideals that fill our works of myth and romance seem to play an insignificant place in these children's lives.

On the opposite hand I was surprised to find how many children gave God or Christ as the one whom they wanted to imitate, 7% of the boys and 14% of the girls make this choice. Bible characters play a small part, mainly with the girls—4%. It is not surprising that in a country where, even in schools under State control, forty-five minutes a day must be devoted to religious instruction, a large number of children should try to express their ideals in the Deity. It does seem surprising that David, and Samuel, and Esther are such weak influences in the children's lives.

If we come now to consider the reasons for the choices that are made, we find that while exact lines of classification are difficult, we can still unravel many lines of tendency that are full of suggestion.

Under "No reason" we find 22% of the boys and 5% of the girls. Thus there are more children who give no reason than there are who give no choice, and here again the girls show a conscientious effort to do what they are told to do; that agrees with what we had already observed.

Vague undeferentiated goodness is the quality in characters that is generally declared to be the thing that makes them attractive. Thirty per cent. of the children do not get beyond this. "Good and kind" is a phrase of which the English children never tire. "I should like to be like my mother because she is good." "I should like to be Queen Victoria because she is good and kind." In this reason, we may be told, the children are mouthing phrases, only a little more markedly than in the other parts of the study. I do not think this is an entire explanation. The masses, whether children or adults, feel drawn toward particular concrete characters, but their sense of human qualities is not well defined, and good man and bad man still rule a large part of our expression.

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Those who give the possession of wealth in any form as the reason for their choice, include 10 per cent. of the boys and 14 per cent. of the girls. This is a much smaller proportion than I should have expected. It seems singular, too, that the girls of the English working class should be more drawn toward money than the boys are. It may be due to the fact that in a great city the girl is constantly running back and forth for little supplies for the shops, and so comes to have a sense of money as desirable. "I should like," says a girl of eleven, "to be Queen Victoria, because she is rich, she is well cared for, and can have whatever she wishes for, and because she has people to wait upon her, and she has a beautiful castle to live in, and because she has the best food there is, and is never in want of money."

Some form of philanthropy, or desire to help others, is declared by 13 per cent. of the children to be their reason for choice. The distribution of this reason by ages runs:

Ages,	8	9	10	11	12	13	
Boys,	0	2	2	9	8	15	per cent.
Girls,	1	8	12	18	35	49	per cent.

This line agrees with other similar strands found in studies on future occupation, in being very much stronger with girls than with boys, and in springing into great activity with girls at twelve and with boys a year later.

Love of glory and power are given by twenty per cent. of the children, distributed thus:

Ages,	8	9	10	11	12	13	
Boys,	16	9	16	24	27	23	per cent.
Girls,	10	6	13	22	29	31	per cent.

Intellectual qualities determined the choices of but 6 per cent. of the children; agreeable personal appearance, 4 per cent.; a pleasant and agreeable life, 8 per cent.; and bravery and adventure 11 per cent., the last being almost exclusively a boy's choice.

In connection with the English study we worked up the data from one Board School located in a better part of London and having a superior staff of teachers. The results for the two main lines of choice are instructive:

ACQUAINTANCE IDEAL.

Ages,	8	9	10	11	12	13	
All-London,	46	45	31	19	17	14	per cent.
Special School,	38	22	20	18	12	7	per cent.

HISTORICAL OR PUBLIC CHARACTER IDEAL.

Ages,	8	9	10	11	12	13	
All-London,	21	15	28	45	53	56	per cent.
Special School,	50	62	52	55	62	63	per cent.

Under the better conditions of this school we see that the children drop their local ideals and take on their larger ideals more rapidly, year by year, than do the children in the average London school. Such studies could be made to advantage in any school building, and they would help to establish a standard rate of growth in ideals which we could accept as desirable.

Let us now compare the results reached in the American and in the English studies. Such comparative studies doubtless mark a new era in the field of investigation, but in comparing American and English school children we have to meet a very great difficulty. In America all the children are in the State schools; in England only the children of the laborers, artisans and shopkeepers attend these schools; hence in all comparisons of children in the State schools we must remember that we are comparing all classes in America with the masses in England. On the principal lines of choice the comparison runs:

ACQUAINTANCE IDEAL.

Ages,	8	9	10	11	12	13	
American,	33	22	20	12	8	5	per cent.
English,	46	45	31	19	17	14	per cent.

HISTORICAL OR PUBLIC CHARACTER IDEAL.

Ages,	8	9	10	11	12	13	
American,	30	50	59	68	75	78	per cent.
English,	21	15	28	45	53	56	per cent.

The expansion of personality with an American child is much more rapid than with a London Board School child; but if we turn back and compare our American lines with the Special School representing the best London conditions we find the lines nearly parallel.

A very interesting line of comparison gathers around the choice of male characters by girls. Boys very rarely choose a woman as their ideal; but in America half the girls at eight, and two-thirds of them at thirteen, choose some male character as their ideal. The comparison of the two countries runs as follows:

Ages,	8	9	10	11	12	13	
American,	48	52	53	58	63	62	per cent.
English,	13	10	16	17	12	14	per cent.

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After some years of residence in England I am inclined to think these lines represent fairly well the relative intensity with which girls in the two countries are reaching out after the larger life lived by men.

The following generalizations seem borne out by the facts so far presented:

1. Half the children in the London Board schools at eight years old find their ideals in some local person in the home, in the school or in the neighborhood.

2. With advancing years they tend to reach out for their ideals into the larger world of public or historical characters.

3. This expansion of the personality follows definite lines of tendency, which can be expressed quantitatively for any group of children for purposes of comparisons with other groups, or to test rapidity of growth within the same group.

4. This movement is decidedly less rapid with the children of the London Board schools than with the children in the common schools of America.

5. It is decidedly less rapid with the girls in the London Board schools than with the boys in the same schools.

6. American girls are reaching out after ideals of life represented by men much more rapidly than their English cousins are.

7. The most prominent single character with the English children is Her Majesty the Queen. Next comes Nelson, and then Mr. Gladstone. In America Lincoln and Washington lead.

8. Deity and Bible characters furnish a large range of ideals for these children, about the same as for the children in Minnesota, though twenty times as much as for the children in California.

9. The characters of literature play a very slight part in the life of the children in the London Board schools, as compared with those in the American schools.

10. There is a very small range of world ideals operative among the children studied; the range of important woman ideals in use among the girls is surprisingly small.

The application of the generalizations that we have reached, to educational practice is another matter, and a very difficult one. In education, as in medicine, the first thing to do is to diagnose your case. The treatment will then depend upon what you want to accomplish, upon what you know about medical practice, and upon what medicines you have at hand.

In this particular case one must decide first whether he wants the children in the London Board Schools to live their lives in a range of ideals made up of relatives and the shop keeper around the corner, with a gradual expansion into the

ideas that gather around in their Queen and their Bible, or whether you want them to go out, in their dreams at least, into the life represented by the great creative and artistic forces of the past and present—forces represented by Balder, Perseus and Robinson Crusoe, by Gordon, Stanley, and the long line of great men and women who have been England's pride and glory.

I think we shall all agree to this, that if one's personality is expanded too fast it will lead to disintegration of character and reckless living. If, on the other hand, it is expanded too slowly, we shall have that arrested devolopment which makes good ground in which to grow stupidity, brutality, and drunkenness, the true fruits of a sluggish and self contained mind.

Is it not true that with girls we are furnishing in our State schools in both America and England a totally inadequate line of womanly ideals?

Some years ago Dr. G. Stanley Hall pointed out in his study on The Contents of Children's Minds on Entering School that we were still using a curriculum in elementary education that had been developed in an agricultural community with children living under city conditions. Is it not also true that we are still using a curriculum developed largely in boys' schools for co-educational work? If you doubt it read any of our school histories. Are Calhoun and Stonewall Jackson the best ideals to hold before young girls? Have America and England produced no women to act as centers of growth for our girls?

These questions, as you see, are too intimately connected with the most fundamental problems of national character and national policy to be dealt with lightly.

Certain it is that if you will provide the schools with that wealth of myth and romance so abundantly available to-day, and if you call into the schools the long line of noble and generous spirits who have been the inspiration of America's and England's leaders, and present them to the children in attractive forms of story you will change these lines of development. Whether it ought to be done or not is another matter.

This study also throws some light upon certain large criticisms brought against the method it employs.

In the first place it is said that the children have no ideals, that such as they have they cannot express, that they will merely repeat phrases or say smart things, and that, in a word, their answers are merest caprice. The answer to this statement must rest partly upon the internal evidence of the papers themselves. I have discussed this question with fair illustrations at the beginning of this study; in these English papers there were not more than three or four that tried to be funny;

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and after some years of work with similar papers in America and England I feel increasingly that if ordinary children are treated earnestly they respond earnestly. As to the criticism that there are no law-abiding tendencies in the development of children's subjective lives, the figures presented in this study are sufficient answer. No one can consider the regularity with which local ideals die out and are replaced by world ideals without feeling that he is in the presence of law-abiding forces. The fact that while these lines are different with boys and girls, and with American and English children they still remain parallel, but emphasizes the fact that a teacher or parent works in a world governed by law, not caprice.

Great events that fill the public consciousness doubtless influence the results of such studies. Three days after Mr. Gladstone died, when he was lying in state at Westminster, when all the papers were published with mourning borders and when his picture was being hawked in every street, I tried this test in a boys' school in London. The choice of Mr. Gladstone mounted from 5 per cent. to 42 per cent.; two weeks later it had dropped to 7 per cent. In our recent study in Boston, Admiral Dewey, who was chosen by no one in Miss Darrah's study, had a following of 30 per cent. Well, that is one of the facts with which modern educators must deal. Because the temperature of the body mounts with fever shall we say that the normal temperature cannot be determined?

But, our critics continue, such studies simply diagnose the case; they cannot tell us what ought to be. Here again they are certainly wrong; it is the only way in which we can tell what ought to be. If such a study could be repeated in a hundred places, a consensus of opinion would determine when the children are living under the sanest and most healthful conditions. Many considerations, historical, sociological, economic, political and racial, would need to be combined in such a judgment, and in that locality we should be able to establish a standard toward which other localities should be drawn. What we need in this field, as in botany, is not the exploitation of here and there a picturesque field, but the flora of each locality, no matter how common-place, must be worked up that we may rise in the understanding of the larger laws governing the development of childhood.

ON SOME PSYCHICAL RELATIONS OF SOCIETY AND SOLITUDE.

By MAURICE H. SMALL,
Sometime Fellow in Psychology, Clark University.

Power of voluntary movement constantly flatters people with the notion that they are independent of their race. Numerous wants and the necessity for undertaking great enterprises, as constantly bespeak ethical relations and social interdependence. Drawing sweeping conclusions from hasty and partial views, one class of men bewails the decay of individuality and seeks to wall itself about with exclusiveness; another spurns every vestige of individual difference and prays that God may speed the day of socialism in all its irradiations. Neither class attempts to give a logical or a philosophical reason for its position. In the library, both classes find the poet, the classical artist and the religious recluse praising solitude: on the street, everything from the dual performance of the organ grinder to newspaper accounts of the incubation of trusts, indicates the rapid action of social forces. Before we can pass judgment upon the relations between these supposedly opposite modes of living, it is necessary to ask which, if either, is the more natural. The answer will be found, if anywhere, in the conditions under which life evolves and in the institutions which men have developed.

I. THE EVIDENCE OF BIOLOGY AND HUMAN INSTITUTIONS CONCERNING SOCIAL LIFE AND ISOLATION.[1]

The consensus of biology rests the idea of unity upon the individual cell. In the generally accepted "Life-Series," the Protista may be fairly regarded as living independent lives. In complex organisms, blood cells, lymph cells, and chyle; ova and spermatospores after they are set free from the epithelium of their secreting organs, are classed among free cells.[2] Among these and other simple organisms, many, which seem individual, are

[1] With an increasing sense of obligation and with deep gratitude for their willing assistance, the writer expresses his thanks to the lecturers of Clark University and to President Hall, who freely gave the use of many books not readily accessible in public libraries, and who generously made suggestions from the results of his personal studies.

[2] Claus and Sedgwick: Zoölogy, pp. 32–34.

not deserving of the name.[1] In morphology they are complete; therefore they stand for units; but if they are separated from the colony to which they belong, death results.

So far as known, no cell ever springs to life save from another cell. In all the varying details of the reproductive process, from the development of zo-oids by simple fission and from gemmation through the higher gamogenesis, the idea of community inheres. In the self-division of the Rhizopoda,[2] in the encystment of the Flagellata, in the internal budding of the Noctilucæ, and in the rapid division that occurs in colonies of Vorticellæ at the approach of a conjugation period, each new individual goes out from community of life to be only transitorily free. Of this community, no one can mark the beginning. The old and the new are there. Their relations are relations of interdependence and reciprocality. If we accept the dictum of Weismannism as to the continuity of the 'germ plasm,' multicellular organisms have arisen from unicellular, the germ cell is older than humanity, and men must seek the source of their gregarious instincts in the history of a hereditary community set up simultaneously with the beginning of life, subsisting through its varied metamorphoses, and immortal.

In cell groups like these, one stands face to face with identity of life-substance and similarity of structure. These may be fairly assumed to imply common needs, like appetencies, similar affinities, and corresponding reactions. The broadest basis for joint effort between the individuals of a group is the natural resultant of impulses and reactions such as these. Next to the reproductive colony already mentioned, and the regenerative colony, which exists for special repairing, the forming of a colony for the purpose of obtaining food is the most familiar example.

Although the ultimate nature of the affinities which bring cell groups together is not positively known, and although conditions are such as to baffle observation in this field, among organisms with a wider range of activities, observation is comparatively easy. It readily appears that the simplest of the more externally related forms of community, consists of a mere symbiosis. It is unsocial and accidental, yet no corner of the world is free from it. It appears to some extent among the Protozoa and the Polyps. Among the Labelliphili and the Abdominalia, the males are parasitic on the bodies of the females. The larva of the Sitaris feeds upon the eggs of An-

[1] Claus and Sedgwick: Zoölogy, p. 25.
[2] A. S. Packard: Outlines of Comparative Embryology, p. 28. O. Hertwig: The Cell, p. 229.

thophora until its moults are complete.[1] The Meloe is carried into hives on the backs of bees. Unciliated Rotifera attach themselves to the Annelida; leeches fasten upon the Homaridæ, the Diadema and the Tubinicella live upon the head of the whale; and the Remora finds a host in the shark. The larva of the Œstrus ovis is a common pest of the Ovidæ; the Glossina morsitans, of African cattle. The Gastrophilus equi and the Hypoderma bovis are well known to every farmer. Even man does not escape. The tissues of his flesh, the mucous surfaces, the digestive organs, the coats of the eyeball, the convolutions of the brain, the lobes of the liver, and the walls of the heart, all bear testimony to this unwelcome community through contact.

The Commensals, which Espinas[2] and others place a stage higher than the parasites, are well introduced by the five hundred species of Psenides or true gall-flies and the inquiline Cynipedæ.[3] The Eulimæ of the Echinodermata; the Palæmonidæ and the Pinnotheridæ of the oyster; the Aphidæ of ants; the Opalinidæ and other batrachian scavengers; the Isopoda in the mouths of fishes and in the nostrils of whales; the many varieties of crab that live upon the backs of sea turtles; the pilot fish that accompanies the shark; and the little burrowing owl of the prairies, are all examples of commensalism. In this form of association, the basis is neither community of interest nor similarity of species, but similarity of food. The relationship may be terminated at any time.

But unlike creatures may be mutually helpful. When a Buphaga, or pique-bœuf, digs larvæ from the backs of cattle on African plains, he becomes a benefactor while obtaining his food. The case is similar when the plover picks the teeth of the alligator, when minute organisms remove accreta and excreta from the fur of animals and the feathers of birds, and when the starling acts as scavenger among flocks in the springtime.[4] The relations of the shepherd pup to the flock with which it is reared are of the same type; and those existing between men and their pets and domestic animals also exemplify Mutualism.

The labor of obtaining food establishes a bond in the case of some animals. Among the Coleoptera, the Necrophora or burying beetles, work together.[5] Quoting Jerdon, Houssay says

[1] Van Beneden: Animal Parasites and their Messmates; pp. 13, 55, 89. Leukart: Parasiten des Menchen, 217–336; Cobbold: Parasites, 14–269; Cambridge Nat. Hist., Vol. V, 533.

[2] Die Thierische Gesellschaft.

[3] Cambridge Natural History, p. 233.

[4] P. H. Emerson: Birds, Beasts, and Fishes of the Norfolk Broadland, p. 129.

[5] Darwin: A Naturalist's Voyage Around the World, p. 150.

that the Pseudætus in hunting pigeons, goes with a mate.[1] One attacks from above, and the other from beneath the victim. When hunting hares, several ravens go together. Wild dogs hunt in packs. Wolves, vultures, and hyenas, pursue large game and rarely attack singly. Hedgehogs are social too, and seek their food in company. Gannets of the North sea unite in large numbers and annoy fishermen seriously by breaking their nets and stealing fish from their boats.[2]

The instinct that warns of common enmity or common danger results in concerted action. Sparrows station sentinels when they plunder a grain field. Crows and rooks are similarly wary. Cranes keep one member of the flock on picket duty while the others sleep and he speedily pays the penalty if guilty of any infidelity. Crows unite against hawks, kingbirds against crows, and small birds against any robber that invades the thicket at nesting-time. Tschudi in his Thierleben der Alpenwelt, says that wild horses in the Russian steppes combine against packs of wolves. Dogs band themselves against strange dogs. Mountain sheep draw together when the note of a vulture alarms their sentinels. Domestic cattle,[3] buffalo, and bisons, assemble the herd against a formidable enemy, and baboons[4] form columns to discharge missiles at an intruder. The combined sortie from the hives of bees and the nests of wasps and certain species of ants, is too familiar to be described.

The necessity for obtaining shelter from the inclemency of the season leads many creatures into association. Among the Lepidoptera, the Morpho, Brassolis, Dione Juno, and many others are gregarious in the larval stage.[5] In the winter, snakes often coil into huge knots made up of large numbers of different species. Birds frequently seek shelter and warmth in the same thicket or cave. When they gather in such a retreat, there is little affinity excepting among such as are like in kind. The effects of habitual association are apparent here. The same thing is seen among domestic cattle and flocks. When out on large ranges in summer, those reared on different farms, although keeping in sight of one another, graze in groups consisting of individuals that were bred together, seek the same shade at noonday, and sleep near together at night. It seems as though an instinctive sense of well-being, intensified by habitual association, is a potent factor for permanency in the

[1] Industries of Animals, pp. 27 and 33.
[2] Emerson: *op. cit.*, p. 200.
[3] Houssay: Industries of Animals, p. 71.
[4] *Cf.* Pierquin: De la Folie des Animaux, I, p. 19.
[5] Proceedings of the Entomological Society, p. 293: Weimar, March 4, 1867.

grex, and that the tendency toward large communities increases as permanent interests become more highly specialized.

Among animals, the breeding season probably marks the most universal example of such a specialization of interest. During this period, there is a narrowing down of companionships and a choice that throws its activities forward. The end of the daily work becomes different. Instead of being complete with the individual that is, it seeks completeness in the individual that is to be. It restricts the superficial range of the worker, but it increases the possibility of working that range thoroughly. It develops a new self in the worker because it forces him to act after the compulsion of newly realized instincts, of which the results are faithfulness toward mates, co-operation in building nests and homes, and joint effort in feeding the young.[1]

Instead of taking away the community instinct, this specialization seems to enlarge it. Ducks, teal, and pigeons flock in preference to living separately. Coots, nuthatches, titmice, chaffinches, tree-creepers, martins and wrens are social, and curlews live in large flocks. Bank swallows build in communities as though each pair were able to recognize in every other, a purpose in common with its own. The Baya or bottle-nested sparrow of Hindostan, lives in large colonies at building time. In the spots selected for a home, the date trees and acacias are covered with nests.[2] The Loxia socialis or social grosbeak of South Africa first builds a common shelter which looks like a huge grass-covered umbrella. Underneath this roof, the individual pairs build their nests. The settlement grows year by year until it sometimes numbers a thousand individuals and it is not abandoned until the increasing weight becomes too great for the supporting bough.[3]

The habits of the Loxia exhibit the phenomena of the industrial community. The viscacha affords a similar example among Patagonian rodents. It lives in companies of twenty or thirty members. When a colony becomes sufficiently large, a solitary male goes out alone and after having selected a site for another, receives the aid of two or three companions from the old home in developing it. Large numbers of prairie dogs live together. What co-operation means to them is shown by their wells. In New Mexico, where oftentimes no water appears for miles, they sometimes burrow to the depth of thirty metres in order to reach it.[4] The Russian 'souslik' lives in great colonies and

[1] Rennie: Architecture of Birds, p. 29.
[2] Brehm: Thierleben—"Vogel"—II, p. 323, *et seq.*
[3] Rennie: *op. cit.*, p. 228.
[4] Brehm: Thierleben—"Saugethiere"—II, p. 294.

multiplies so rapidly as to defeat the efforts of men to exterminate it.[1] The dwellings of termites in Guiana, New Holland, and on the American prairies, are mounds often ten or twelve feet in height.[2] The numerous families of building ants, the social wasps and the social bees, minutely described by De Geer, F. Huber, Latreille, and Lubbock, represent model animal republics. In these republics, each insect has a special part to perform. There are laborers and directors, soldiers, policemen, stewards, and nurses. Neglect of duty is punished as among the Cynocephali, which kill a faithless sentinel, or beavers, which put to death an isolated member of the family, if it attempts to return after banishment. Similarly, non-conformity to the common will, results in elephant ostracism, sparrow assemblies, crow courts, and councils in the heronries.

Migration, whatever its cause, illustrates the truth of Perrier's dictum that social life tends directly to longevity.[3] The schooling of sharks, dolphins, whales, porpoises, mackerel, herring, smelts, and especially of fishes like the Salmonidæ, which make long migrations; the wholesale abandonment of a habitat by animals like the lemming; the desertion of their nests by ants to escape infection; the general movement among antelopes, gazelles, and fallow deer toward a new pasture; the herding of reindeer and musk oxen in the North and of donkeys and wild mustangs on the Pampas, no less than the swarming of bees and locusts, and the flocking of birds, are an evidence that nothing wishes to enter the unknown without companionship. Animals and men alike desire to have the energy of others added to their own, and there is no doubt that association at such a time, means both economy of energy and increased security. Pierquin says that animals living in communities develop a higher degree of intelligence than those of solitary habit.[4]

When compared with social animals, those which live alone seem few. Certain families of wasps which build in the stalks of shrubs and brambles or burrow in the ground, lead independent lives. The Pelzbienen[5] and Erdbienen of Brehm are partially solitary, and so are certain species of Lepidoptera. Among the smaller animals, the Viverridæ and the Mustelidæ are unsocial. The larger carnivora know very little of com-

[1] L. Figuier: The Insect World, p. 406; Quatrefages: Souvenirs d'un Naturaliste, p. 337; Michelet, p. 236.

[2] P. Kropotkin: Mutual Aid among Animals; Nineteenth Century, Nov., '90, p. 704.

[3] Colonies Animales.

[4] Colonies Animales, Vol. I, p. 195.

[5] The Xylocopæ, Osmiæ, Chalidomæ Megachilæ, and the Anthocopæ, belong to the classes named above.

munity life. This is also generally true of Raptores. The marsh harrier, merlin, and kestrel, live retired lives. The sandpeep is so shy that little is known concerning its habits, and the jacksnipe is so naturally an anchorite that it shuns open places and only in rare instances are two found together. The cuckoo, like other robbers, has but little social magnetism to attract its feathered neighbors.[1] Night hawks have no companionship with other birds, but become attached to places; bats, peacocks, and birds of paradise, always find themselves amply occupied with their own personality. The character of the animal solitaire contrasts strongly with that of its social neighbors, and its relative infrequency, is extremely significant.

Thus far, no mention of man has been made. At this stage in the scale of life, we come to a creature whose first moment of independent existence wavers between death and adjustment to the conditions of social ministration. A period follows which is marked by little of either sociability or individuality. Then play comes in to teach the nature and meaning of concerted action. According to age, strength, quickness, and inclination, natural groupings arise and these manifest themselves with almost kaleidoscopic versatility on the school playground and wherever children congregate. Then follow the imitative reorganization of the town or city, the adaptation of the political gathering, the church, the temperance legion, the various children's societies and secret organizations, and all these do something toward teaching a child that he is a part of a larger body in which his freedom for action is unlimited until he asserts his single will against the composite force which represents the will of the group of which he is a member. One of the earliest lessons of childhood, and the one most frequently reviewed throughout life is the necessity for self-adjustment.

Merely to name the manifold irradiations of the social instinct, would be to write an outline history of mankind and to fill the shelves of a generous library. Nevertheless, a few examples are necessary to bring to view certain facts that are naturally concomitant with the concept of social life.

Perhaps the civilization of any age may be fairly regarded as the ratio between its total wants and the total means of satisfying them. Whenever, in any given region, the gregarious habit has increased the collective appetite until it became too great for the natural resources of that region, the necessity of obtaining food has furnished a motive for voyages of exploration and for a change of habitat. Whenever a colony has gone out from any permanent community, it has been at first dependently associated with the parent community, and later, recipro-

[1] Emerson: *op. cit.*, p. 165.

cally related to it. Systems of water ways, networks of railroads and lines for electric traction, mazes of homely highways that leave no forest in isolation and no desert uncut, ocean cables, long distance telephones, and signal lights on tower and cloud, all offer incontrovertible assurance of the universality of human sympathy and of the unity of mankind.

Only a slight bond is required to unite men by ties of common interest. A common table does it. Occupation, one's rating 'on change,' the scientific impulse, professional insight, like beliefs and sympathies, and similar ideals may determine it. A suppressed fact, a secret without consequence, a common love, a mutual hatred, or a common crime, is sufficient. *Men must be mutually interested in something.* Tribes and federations are an evidence. Military leagues like those of the Aztecs;[1] blood-sealed compacts of fraternity as among the Arabs;[2] and oath-bound pledges such as were taken by the early Germans in adopting the friendships and enmities of their ancestors, strengthen the idea of the solidarity of the clan.

The struggle for food produces pain. When the struggle is over and hunger is appeased, new sympathy has been developed and leisure is left. Under these conditions, the creative instinct of the community finds a natural expression in æsthetic and ethical activity. Village improvement associations, park commissions, and public gardens; evening schools and industrial institutes; lecture courses, art leagues, and university extension; associations of professional men; congresses of scientists; federations of clubs; Christian Endeavor societies, Missionary Boards; and every form of religious convention, from a World's Parliament to gatherings for the advancement of Zionism, represent the deepened spirit of irradiated interest.

Work of this character does not result in complacency, but in ambition. Men burn with the fever for new advantages. International visiting commissions and World Expositions result. Arts, crafts, and trades form their guilds. Trusts and transportation companies arise and find correlatives in co-operative building associations, profit-distributing stores, mutual supply companies, and 'Poor Men's Banks.' In the field of philanthropy, free dispensaries, homes for soldiers, sailors, and members of fraternities; retreats for the aged and infirm; college clubs in cities and recreation clubs in the country, exhibit the tendency of men to find their best state in a larger unity than the individual life. This principle has already found application in co-operative labor colonies,[3] of which Germany has a

[1] Letourneau: La Guerre, p. 171.
[2] Letourneau: *op. cit.*, p. 307–408.
[3] Moore: Back to the Land.

score, England a dozen, Ireland, Africa, and Manitoba, a quota each. Philanthropists and economists are just beginning to carry into effect the thought which led Cretan Minos to bring his people to a common table; which appeared again in the Spartan state under the sovereignty of Lycurgus; which Plato taught in the 'Republic,' More in the 'Utopia,' Bacon in the 'New Atlantis,' Campanella in his 'City of the Sun,' and Harrington in his 'Oceana.' The same humane instinct gave rise to 'Babouvisme,' to Robert Owen's 'Villages of Harmony,' the phalansteries of Fourier, the word-paintings of Bellamy and to two somewhat recent books which offer a grotesque mixture of common sense and fancy, 'News from Nowhere,' by William Morris, and Howells' 'A Traveller from Altruria.' In all these works and theories, the most significant fact is that no writer on Utopia has ever conceived it as anything else than a community life, more perfect through enlarged sympathy, toleration, and privileges. And this notion is universal, for wherever individuals may locate the heaven to which they aspire, and however differently they may represent it, whether they make it a place or a condition, its common characteristic is sociality.

Up to this point we have moved with the resistless tide of human feeling and traced some of the most significant stages in the growth of human aspiration. But on its confines, this tide does not always come to rest in unbroken ripples. Men are not uniformly civilized. The savage and the barbarian are yet to be found in every hamlet. Rapacious acts among men still give evidence that rapacious instincts are not dead. Between the social community and the solitary life, there is a transition stage.

A. Anti-Social Groups.

Among these groups, there is still a kind of social life, but they are at cross-purposes with the ideals of the times in which they exist. Assuming that such ideals are the basis of normal social life, the ground of concerted action for the anti-social group is common hostility and common danger. Between the latest mob over labor differences or a Revolutionary Commune and the 'Hung Kea' of the Seventeenth century,[1] or the 'Society for gazing at the Moon,' there are many gradations, but the ultimate purpose is the same in all. The 'Carbonari' grew up in a charcoal burner's hut and their watchword was 'Liberty for Italy.'[2] Fenianism was the outgrowth of a similar feeling in Ireland. Such is often the beginning of a change in the character of majorities.

[1] Eclectic Magazine, Vol. LIV, p. 662, *et seq.*
[2] Sylvio Pellico: My Prisons.

Passing from the instinct for freedom to the instinct for life, the Mafia (Bonachi, Mafiosi) of Italy, from whom the later Camorra sprang, are a type of anti-social bands of their class. The fraternity was one of cheats and robbers. Its aim was to foster crime and to protect criminals. A part of its business was to sell votes in the Courts of Assizes. Its members were distinguished by rings, neckties, manner of dressing the hair and raising the hat, form of salutation, and style of walking. No member dared to break his oath.[1] The *Main Noire* of Spain made it an ethical principle to dissemble concerning membership, to perform every duty assigned, and to suffer death for any breach of faith. The Lombardo of Sicily differed from other organizations of brigands only in name. The Artel of Russia endeavor to protect prisoners against authority. The association starts to secure freedom from legal constraint, but ends by compromising all independence of its members and becoming a swindling institution. Siberia is not large enough to hide a member who breaks his oath of initiation.

The 'Hearts of Steel' and the 'Break of Day Boys' were Irish societies for political revenge; they can be paralleled, in purpose at least, by orders of the 'Red Sealer' type in some of our cities at the present time. In the United States, thieves' trusts, fraternities and gangs, like the 'Green Cravats,' or boy thieves of Paris, show how the anti-social classes co-operate for personal advantage, and 'White Caps,' 'Moonshiners,' and artists in decoration with tar and feathers, are to be similarly classed because the purpose which brings them together does not unite them by ties of permanent interest.

A class still lower, amounting almost to parasites, is found in tramps. When followed to the far East, they find their parallel in the Thugs, Bhys, Bursoli, Kachunee, Hutlar, and Ganoo of India, who hide their murderous leisure by life in the desert. They roam in bands consisting sometimes of a dozen, sometimes of a thousand. Their idle and vagrant habits recall the 'Jukes,' described by Dugdale, the 'Tribe of Ishmael,' whose history McCulloch has recorded, and 'Une Famille du Criminels', described by Dr. Aubrey.

A kind of fellowship, also exists in the 'kaffee-klatsch,' the 'opium joint,' and the 'pretty-by-night.' It is found again in the *folie à deux*, in the suicide *à deux*, *trois*, *quatre*, *cinque*, and in the case of whole families who talk over their hard lot and determine to end it all.[2] Similar conditions may lead numbers

[1] Griffith: Secrets of the Prison House, Vol. I, p. 119-120; Geo. W. Kennan, Century Magazine; C. W. Heckethorn: The Secret Societies of all Ages and Countries.

[2] See Sighele, Psych. de Sectes; Aubrey, Contagion du Meurtrir; Chpohanski, Des Analogues entre la Folie à deux et le Suicide à deux.

of men to either a sudden or a deliberate decision to die. The somewhat recent suicide of a group of actresses in a banquet hall after having passed the night in festivity, like the case of the five hundred disciples of Confucius who did not wish to live after the burning of their sacred books,[1] and like that of the hundreds, who after hearing Ambraciotes discourse on the miseries of life and the glories of the hereafter, followed him in self-destruction,[2] points to the fatality of an impulse whose contagion roots in a prepared soil.

The cooler method of the 'Suicide Club' is still more startling. Dr. Collineau, in the Archives de Psychiatrie et d'Hypnologie, describes a Roumanian club of men who banded themselves for the purpose of closing accounts with existence in the most economical manner. Such a fact makes Stevenson's descriptions[3] more than romantic imagination. In the American Medico-Psychological Annals for 1892, there is a description of a society whose members met their end as their names appeared among the lots in an urn. Five were said to have died before the date of the writing of the article. In general, the conditions leading to membership in such clubs are hard luck, loss of freedom, loss of physical power, occasionally thanatophobia, and sometimes self-immolation, in order that the soul may advance more rapidly toward freedom.

B. Enforced Isolation.

If, as has been assumed, the highest ideals of the majority represent the normal standard of human relations, and if groups like those described in the preceding section, struggle to crush such ideals, society must protect itself. It seeks to do this by putting offenders where they will be powerless to do it injury, and penal colonies, the galleys, prison ships, reformatories, solitary prisons, and exile result.

But these are not all the forms of enforced isolation. Whenever a man engages in an occupation like diving, mining, watching flocks in the mountains or herds on the plains; whenever he enters into the manufacture of explosives, poisonous chemicals, or anything else that increases the probabilities against life or lowers its feeling-tone; whenever he crosses the threshold of an office, a factory, or a shop which has on the outside 'Positively no admittance;' and even when he is busy with plans for a venture in any direction, whether it be in a car, theater, church, or crowd, there is always a narrowing of the limits of consciousness which leaves him alone with himself.

As popularly defined, genius is a form of enforced isolation.

[1] Aubrey: Contagion du Meurtrir, p. 162.
[2] Burton: Anatomy of Melancholy.
[3] The Suicide Club: R. L. Stevenson in The New Arabian Nights.

It represents so much of specialization that it is immutable in one direction and highly unstable in all others. It is a repellant force holding humanity at a distance. It cannot conform; it knows no planes of common interest; it has no conception of a 'consciousness of kind;' it cannot condescend to men; they cannot rise to it; necessity is the law that isolates it. The history of invention teems with records of the estrangements and the struggles of the world's benefactors. Painting, sculpture, music, much of mathematics, the real discoveries of physical and chemical science; some of our most abiding literature; and nearly all philosophy represent the ripened fruit of retirement.

Still more complete is the isolation of born defectives and of those who, through accident, have lost the functions of any of the senses. To the same class must be added those who, although born with a normal organism, have found their lot cast in an environment which, from failing to offer adequate stimuli, has permitted arrest of psychic growth long before the organism has attained its normal measure of development. Similarly, psychopathic conditions like hypochondria, hysteria, neurasthenia, melancholia, and all forms of mental alienation or physical incapacity arising from illness or failing sensibilities, as in old age, must always result in some degree of homiliotomy.

C. Voluntary Retirement.

In ordinary conversation, we have an easy way of speakiug of voluntary isolation. Whether this kind of separation be voluntary or not, it embraces all who, engrossed by a single purpose have sought retirement as the condition best adapted for attaining that purpose. It includes the transient reveries of Socrates, the long separations of Buddha, Confucius, and Mohammed; all research and specialization from the garden bench of Democritus to the laboratory of the latest theorist on insulation; all studious disregard of custom; Stoic renunciation; contempt for physical comfort and natural desire, like that which schooled the Cynic to be content with a tub; and, no less, that attraction toward the heart of nature which finds expression in the measures of a Wordworth, or the harmonious colorings of a Turner. In a most striking manner, it has been the richest soil of theological unfoldment. Starting, perhaps, with the worship of Bacchus and Ceres or the Orphic rites; perhaps in the attempt to do homage to Osiris and Isis or to perpetuate pleasurable customs of fraternal or tribal adoption still more primitive, ascetic doctrines arose and flourished for centuries on Indian soil before Buddha received his inspiration for a new philosophy. The Zarathustrans taught the meaning of isolation to the student of great truths. It was a first prin-

ciple in the training of the ἀσκηταί of Pythagoras as well as in that of the Essenic orders, which Bauer, Zeller, and Keim believe to have descended from the Pythagoreans. It meant scarcely less to the guilds of the Therapeutæ on the shores of the Dead Sea and in the valley of the Nile. It led Antony into the desert to seek the highway to holiness. It brought visions of supreme glory to Paul who, in the wilds of the Thebaid, lived his disdain of mortal ambition. Jerome and Ambrose taught it in the cloister at Nitria as Pacomius did to the Rechabites. The praises of solitude for meditation went up from the lips of Benedict among the rocks of the Subiaco and he impressed its importance upon the brethren of Monte Cassino as Bruno counselled it among the Carthusians on the heights of Chartreux and Saint Romualdo among the Camaldolese in the valley of the Apennines. The Trappist made it more efficient by long fasts and silence, and from Soligny la Trappe to the abbeys of Gethsemane, New Melleray, and Tracadie, no crystal gazer ever caught brighter visions than those which came to the monkish trance induced by the contemplation of a casket or an open grave. Out of silence and seclusion and self denial, one and all felt uplifted by the power, which, as the Carmelites thought, came to Elijah at Cherith. When Loyola became the apostle of Jesuitism, retirement and self denial were not forgotten. The Spanish Alumbrados and the Guerinets also knew the meaning of solitude and the Swedenborgian mystics had their hours for meditation.

What is the meaning of all these examples? In spite of the great mass of biological evidence for its existence, must we infer that social life is a vagary? Behind the cell-group, the animal republic, and the community of men, there exists a law, perhaps of physico-chemical attraction, which renders the concept of association inseparable from the concept of existence. This view is also supported by the etymology of the word society. Although its Latin root contains the idea of following or imitation, it also conveys the idea of sharing, or partaking with another; its Greek correlate signifies attendance and ministration; and the corresponding Sanscrit means 'a friend.'

What then shall we say of the isolated life? Does it represent a long-circuiting of natural instincts, or is it a basal instinct of the soul and the most efficient promoter of growth and of wisdom? Does it open a paradise of health and vigor to the mind, or does it tend toward a deviation from normal interests and activities, a pathological mental state, and the development of psychological sports? The root of the word solitude conveys a notion of desert waste, barrenness, and lack of physical presence, but just as strongly an idea of wholeness and well-being. The passive idea of being left alone or destitute, is

quite as marked in the word as the active one of voluntary retirement.

In the word society, the idea of physical presence is somewhat evident but this is not indispensable to social feeling, the more important elements of which, are the thought of mutual contribution, consensus, companionship, and wide reciprocality of relations. Given these in any place, space is unthought of; there is no solitude; there can be none. Take away reciprocality of feeling, and no one can be so environed as not to be an anchorite in a desert of men.

II. Conditions Leading toward the Solitary Life.

If social life is the normal state of men, what are the particular physical and psychical conditions which lead them away from it? The biographies, autobiographies, and general writings of solitary characters must furnish an answer. About five hundred of these were studied in a general way, and in one hundred cases,[1] a careful summary of the leading traits of each life was made. A few typical cases are here presented in order to show the method of making the comparison which follows.

Alfieri. Of noble birth, wealthy, roving, passionate with a tendency toward dissipation. Disappointed in love; had hysterics; recovered; entered into a new intrigue in England. In Florence, avoided fair women and saw little of men; became morose; then melancholy; admitted being as much flattered by praises of his judgment in buying horses as of his skill in versification. His humor for the day is said to have been determined by the neighing of a favorite horse. (Memoirs and Works.)

Amiel. An orphan at twelve; sensitive, delicate, dreamy, mystical; at twenty, timid, discouraged, melancholy; isolated by the overthrow of the Conservatives while professor of æsthetics at the Academy of Geneva; dreamed of greatness; thirsted for it; was constantly tortured by nostalgia and the fear that he had missed his destiny. Scherer says of him, "Social ostracism prevented him from producing any-

[1] Æschylus, Alfieri, Amiel, Antisthenes, Antony of Egypt, Arsenius, Apollonius of Tyana, Thomas Aquinas, Bacon, Bartolomeo, Beethoven, St. Benedict, Bersot, Bolingbroke, G. Bruno, Buddha, Burns, Burton, Byron, Campanella, Carlyle, St. Catherine, Cavendish, Cervantes, Channing, Chateaubriand, Chopin, Cicero, Coleridge, Comte, Confucius, Cowper, Peter Damiani, Father Damien, Dante, Daudet, Democritus, Demosthenes, Descartes, Diderot, Emerson, Henry Fawcett, St. Francis of Asisi, Galileo, Gall, Guerin, Handel, Hawthorne, Heine, Heraclitus, Herder, Hobbes, Hume, Humboldt, Johnson, Keats, Lamb, Lander, Lamartine, Lavater, Lavoisier, Leibnitz, Lenau, Leopardi, Lucretius, Lucian, St. Margaret, Mendelssohn, Milton, Moliere, Mozart, Newton, St. Nilus, Ovid, Pascal, Petrarch, DeQuincy, Racine, "Rene the Good," Robertson, Rossini, Rousseau, George Sand, Schopenhauer, Shelley, Swedenborg, Swift, Symonds, Tasso, Thoreau, Thucydides, Turgenieff, Varro, Vico, Virgil, Weber, Blanco, White, Wordsworth, Youmans, Zimmerman, An Adolescent Solitaire, "Oberon," "Obermann," "Rene," and "De Charnay."

thing but trivialities. He was brilliant, thoughtful, experienced, but barren because of 'la maladie de l'ideal.'" (Journal.)

Arsenius. At forty, fled to the wilderness of the Thebaid; avoided the face of man; sought silence only; complained that even the reeds of Troe broke his calm by their noise.

Bacon. Sensitive, proud, ambitious, industrious, ready of wit; fawning to superiors; infatuated both with his form and his face; fond of listing the defects of his rivals; not over inclined to keep his contracts. Imprisoned in the Tower of London. (Lives by Knight and Spedding; Calendar of Great Men.)

Beethoven. Poor, proud, deaf, subjective, averse to companionship and activity; mystical, solitary, sad; cursing existence; called 'the Growling Old Bear.' (Calendar; W. Alger; Lives of Beethoven.)

Burns. Early life as "full of gloom as that of a hermit." Passionate, discontented with his lot; lacking balance; thirsting for glory; strongly social; unable to bear defeat in either physical or mental contests. In his 'Egotisms from my own Sensations,' he confesses to a habit of seeing the characteristics of great men in himself. Affected indifference from the bitterness of being scorned by men. (Works, with Memoirs; Biogs. by Currie, Lockhart, Tyler, and R. Chambers.)

Byron. Lame, sensitive, shy, proud, irritable; held men and social laws in contempt; impatient to receive praise; grudging, revengeful, self-willed, an anthropophobiac; would leap out of a window at the approach of a stranger. At Harrow, spent much time in a tomb in a churchyard. Embittered by criticism, plunged into dissipation but said in palliation, 'I did it all to make some hours of isolation less dreary.' (Alger; Harrison.)

Carlyle. Physically weak, dyspeptic, neurotic, sensitive, fretful, harsh, cynical, unhappy in his domestic life; brilliant and strong as a writer; regarded Cromwell 'mad and a quack;' had a similar opinion of Anselm, Becket, and Goethe; called Englishmen 'fools,' Americans 'bores,' and people generally, 'show and sham.'

Cavendish. Had a defect in speech; was extremely reserved and shy; often when addressed, would turn abruptly away; was accustomed to order dinner by leaving a note on a hall table for his servant; knew little of active life; nervous, irritable, retired among his books, servants thought him demented; toward the close of his life, desired to be left wholly alone that he might study the progress of his malady; is said to have been the most silent man that ever lived outside of a Trappist monastery.

Daudet. Passionately desired glory; was impatient at the cares of domestic life; maintained that marriage renders the highest intellectual attainment impossible; was as anxious to be free from the routine of social life as he was to receive the praises of men. Left his wife and home to live for months in a lighthouse off Corsica. The problem of solitude is touched in his 'Kings in Exile' and in 'Les Femmes d'Artists.'

Heine. Witty, wise, bitter, unrestrained in temper, fiendish toward rivals; personally unimpressive; scorpion-like in manner; forced men to recognize him; broken down nervously; chagrined at the failure of an uncle to provide for him; felt life lost; declared that the mental tortures of his solitude exceeded those of the Inquisition.

Herder. Solitary as a child; fond of father's approval; read in the trees and rambled much in the woods; timid, reserved, proud, physically strong; hated practical pursuits and dreaded military service; fainted in the dissecting room and gave up medicine; as a bookseller's clerk, half-starved and chafing under the pedantic spirit of Königsberg. Riga became a wilderness to him; he grew irritable and jealous, and

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despised social forms. In later life, cursed the solitude and gloom that surrounded his youth. (N. Am. Rev., July and Oct., 1872; The Monograph.)

Leopardi. Eagerly desired to be great; feared nothing so much as mediocrity; felt himself surrounded by men who had no interest in his work; became melancholy; said of himself, "I was condemned to waste my life in a wild village, amidst a dull race. They hated me and I fled."

Racine. At thirty, a master of dramatic composition; sensitive, proud, cut to the heart by sneers of jealous rivals; disappointed in love, lost self-respect; at thirty-seven, became a monk.

'Rene, the Good.' Studious, æsthetic, a lover of his people. Defeated in 'La Journee des Barons' at Bulgneville, in 1831; imprisoned. Hope seemed useless; melancholy followed; solitude became unendurable; roused himself to study music, painting, and the history of war. In this manner kept himself employed until his release. (Life: pp. 113-180.)

Schopenhauer. Physically weak, neurotic, eccentric; had little affinity for his mother who was absorbed with living up to 'good form.' Intolerant of the world; hungry for fame; regarded men as fawningly egotistical; gloomy and melancholy; wandered about the streets of Dresden; saw the time when he would have welcomed even those whom he had called 'toads and vipers.' Went into retirement in Frankfort. Held that solitude mitigates suffering by taking away 'the will to live.'

Swendenborg. Subjective, imaginative, sincere, never morose or gloomy; retired into complete silence in 1840; had visions from angels; all his 'heavens' divided into societies in which individuals were in accord. Never debated his position but declared that he 'knew what he wrote to be the truth of God.' Would not join a literary society because he declared himself to be affiliated with angels. (Autobiog. written for Hartley; Documents concerning the Life and Character of Swedenborg, 2 Vols., Dr. R. L. Tafel; Lillie: Modern Mystics and Modern Magic.)

Symonds. Mother died when he was four; father silent and reserved; depressed by home surroundings; a sleep walker; had delusive dreams; hated physical exertion; said that 'lack of physical strength made him solitary;' vain; enjoyed sitting for his portrait; vowed that he would become eminent but could not see how to do it; a criticism of the size of his mouth made him morbidly self-conscious and drove him away from people; at Harrow, was without associates; at Balliol, despised himself for caring so much for them; broke down in health; suffered from melancholy and suicidal thoughts. The study of Plato removed his ennui and took away his asceticism. (Autobiog. of J. A. Symonds.)

Weber. Pensive, shrinking, lacking force to endure contact with coarser natures; pondered on the miseries of existence; and withdrew from men because 'there are so many wretched souls in the world.'

Zimmerman. Weak in constitution; suffered from neurasthenia; courted admiration; exceedingly vain; always displayed his letters from Frederick the Great; loved to be leagued with the rich and powerful, but felt superior to common people; praised solitude but died mad.

An Adolescent Solitaire. Parents, scholars of note; the young man, quiet, meditative, desirous of being free from all thralls; fond of walks, brooks, birds and flowers; kept notebooks full of religious and æsthetic sentiment; was much impressed by the thought of change in nature; was constantly pleading for companionship and affection; life extremely lonely; suicided before reaching the age of twenty-one.

Types from Fiction.

"Oberon." An orphan at twelve; runs away; returns; lives solitary and sad; dreams of greatness and wishes to accomplish something but feels of no use in the world; "leaves no tracks;" "loses his steps in air;" has suicidal thoughts; expects an early death but dreads it; knows it will be oblivion, but knows that in solitary life there is the same oblivion; visits Niagara and catches an idea of power through motion; returns; interests himself in people 'to save youth from a fate like his own.' Learned to understand the emotions of the young, the gloom of the solitary, the struggles of the earnest, to think better of the world, more leniently of its faults, more generously of its failings, and found his own mind "opening into perennial blossoms." (Hawthorne: Fragments from the Journal of a Solitary Man.)

"Obermann." Always introspective, undecided, irresolute, and apathetic; can feel and think, but cannot feel and act; wishes to be a monk in the desert; regards human action as vain, practical affairs as '*miserables;*' craves sympathy yet shuns his friends; never recovers from his melancholy because he is a victim of volitional paralysis; he feels that it will do no good to try to do. (Senancour "Obermann.")

"Rene." Suffers shipwreck and lands among the Natchez in the wilds of Louisiana; takes a wife from the tribe; finds himself unused to the rough life and uninterested in it; becomes moody and melancholy; desires a great career but sees around him only a desert barren of opportunity; anxious for friends and encouragement, he hears no national song, no voice of praise; solitude preys upon him; its sounds are like the murmurings of streams in a desert, an imagery which maddens; he likens himself to one who sits on the crater of a volcano and weeps for those who dwell at its foot; in despair he cries: "J'étais seul, seul, sur la terre. Une langueur secrète s'emparait de mon corps . . . . . Bientôt mon cœur ne fournit plus d'aliment à ma pensée, et je ne m'apercevais de mon existence que par un profond sentiment d'ennui . . . . . Je luttai quelque temps contre mon mal avec indifference et sans avoir la ferme résolution de la vaincre . . . . Je résolus de quitter la vie."

This mood burns itself out. He sees that the savages cannot rise to the civilized life at a bound and that he must be the variable. He now becomes Re-ne indeed, finds his Indian wife kind, the tribe friendly. Sympathy awakens in him; his melancholy vanishes; he becomes a leader and dies opposing the enemies of the tribe. (Chateaubriand: "Rene." The author declares this no sketch of fancy.)

Of the hundred persons whose most striking characteristics have been illustrated in the preceding sketches, eighteen suffered from physical weakness and horror of muscular effort; seven had a physical deformity or some sense defect; seventeen were of a pronounced neurotic type; nine had hallucinations; eight were famed for visions; thirty were extremely subjective from childhood; three were reared in the cloister and six more were bred in the midst of a solitude almost as intense; sixteen suffered from aboulia, referred to as 'lack of will' or 'lack of force for work.' Too much luxury or profligate companions drove eight to the cloister; defeat of party made seven solitary; loss of friends and disappointment in love alienated fifteen. Religion led twelve into retirement; science and philosophy,

eleven; several were solitary per force, since they were either imprisoned or banished. Perhaps a dozen really suffered isolation from entertaining ideas too advanced for their age.

Another ground for natural repulsion against society appears in the same records. Thirty-three were eagerly desirous of praise and full of personal vanity; forty were strongly self-assertive and self-exalting; twenty-one strove only for personal glory; thirty-three scorned men as beings inferior to themselves; four were misanthropes, and twelve could not endure criticism.

B. The Relation of Egoism to Solitary Life.

In the lower animal forms, action has no moral purpose. It arises from a blind impulse for life. When action becomes consciously performed, it becomes moral. Since conscious action, in some degree, results from a consideration of form and end, the awakening of purpose in the *unconscious*, is the birth of the moral ego.

If life were isolation, or if commerce between men were impossible, each man would be a law to himself and might dictate his relations to the natural objects within the circle of his activities. Neither self-development nor self-restraint would be necessary. Any impulse which would lead to the supplying of his needs at birth, would always suffice thereafter. Personal will would be an absolute category. But human life is not cast in such a mold. Physical association is a law of living. This fact changes the mode of living. It also changes the means, method and forms, which render the motive efficient. Equal terms in the effort for advancement, are a prime requirement in social life. Intelligence readily perceives that the struggle is not merely physical and that standards of human intercourse are mutually advantageous wherever men come together. "Reason," says Dr. P. Topinard, "causes man to vacillate between two tendencies: one of associating with his fellows for the advantage which he expects to derive; the other, of entirely dispensing with them."

The power to reason, to formulate standards for conduct, to recall the past, to consider what experiences have been advantageous and what disastrous; to bring back days of triumph and hours of defeat, and to compare self with others, tends directly to magnify the ego. And the process is beneficent so long as one keeps in mind a just estimate of his relationship to others and does not become *self-centered*.

In society, no individual can be absolute. Constant variation from the standards of personal desire is necessary. The men to whom reference was made in the preceding section, were in most cases, the victims of an exaggerated sense of self. They suffered neglect and loneliness because of their failure to under-

stand that the highest development of a self is to be found in the most perfect adjustment of its forces to the forces of other selves around it, and that each personal will is only a molecular force contributing itself to a mass-potentiality. Such an egoism enables any individual to live in the midst of the traditions, conditions, and ideals of his environment without despising them. If he be strong, it will give him enough in common with men around him, to make contact endurable and service possible; if he be weak, it will lead him to perform his part from a feeling of common destiny.

Between a normal egoism and the extreme form which isolates, no fixed line can be drawn. One cannot give a just judgment from individual acts that come within his experience, and no party to a given course of action is more likely to be deceived as to the basal motive of it than the chief actor himself, if it chances to lie within the field of his own plans. Much that seems purely selfish to the superficial view, ultimately appears to be generously related; much that is popularly praised as benevolent and admirable at first, turns out to be incense to an ego-theos. When Dhagrit became the expounder of ascetic doctrines, he taught that the soul was to be set free by privation and hardship. Separation from society followed; then solitude, in order that the conflict might be easier through the absence of stimuli to personal desire. The desert and the cave became laboratories for the transformation of body into soul. Then rivalry sprang up. The man who could go farthest into the wilds, invent the sharpest torments for the flesh, scorn food and physical desires most disdainfully, acquired a distinction that brought ambitious followers and competitors. Hideous emulation in self-torture arose. Hindoo ascetics swung on hooks that pierced their flesh in honor of Siva; suspended themselves head downward over flames; rolled in thickets of thorns; leaped upon sharpened spikes and pierced the tongue when that member offended. Fakirs stretched their arms into painful positions and kept them there in changeless catalepsy, or clasped their hands together until the nails grew through. They exposed themselves to the bite of venomous insects as the Vanaprastha,[1] exposed themselves to hunger and cold, and fought with imaginary devils. Among the Pythagorean and Sesterian orders, rich feasts were prepared in order that, in the midst of sweet favors, appetite might be defied. Macarius thanked God for self-denial as he threw into a lake, a bunch of grapes which had been refused by every man in his Order. Saint Simon Stylites is said to have lived upon the summit of a pillar for forty years, always keeping an attitude of devotion and never desert-

[1] The Gymnosophists of the Greeks.

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ing his place save when blown from it by the tempest. He is said to have bound himself upright when he became too weak to stand and to have kept long fasts in imitation of Moses and Elias. In spite of the efforts of Pacomius, he stands without a peer as an illustration of the vanity of self abasement.[1]

But there came a day when religious recluses saw that their highest service lay in ministration within the limits of the community. The old principle of self annihilation reached its saturation point. Temporal power was necessary to advance the kingdom of the spirit. The egoism which had been cloaked in the garb of humility became arrogant and found its climax of the Eleventh century in the spectacle of a monarch without a crown, standing barefoot in the snow before Canossa, suppliantly seeking absolution from the decree of Hildebrand, pronounced as boldly as four centuries later, Ximenes of Spain, said to the temporal sovereign, "Never forget that I hold your Queen every day at my feet and your God in my hands." At the present time, it scarcely seems possible that either extreme could ever have existed; but in the saner views with which we are familiar, there appears a transformation due to the consecration of egoism, which, in ethical systems, like those of the Stoics and Epicureans, Topinard declares to be the only thought achieved.

No such transformation appears in the ethics of certain schools of writing. It is the philosophy of Baudelaire that a man may rightfully live to make an idol of himself, and he declares it his greatest delight 'to produce a new shudder.' In the moral paralysis of Huysman's other self, Des Esseintes,[2] there appears a logical result of self-worship that has its parallel only in the criminal. With such men, as with the outcast, anything which brings the slightest personal distinction is anxiously sought and flamboyantly displayed. Their attitude toward society is like that of Lacenaire; "Voir expirer l'homme que vous haissez est un plaisir devin;"[3] or that of Scananella who, before his execution, swore the members of his band to kill those against whom he held grudges.

To make the self unique and striking is the study of little minds as well as of perverted ones. We regard it an innocent fad, without further significance, when a man boasts of his curios, 'limited editions,' and 'special brands.' Our vanity always keeps us 'in the swell set,' or 'among the best people in town.' If we come to grief in consequence, we know that Mithridates sacrified his head for claiming the glory of Aris-

[1] In this section, reference was made to J. S. Johnson's Monks before Christ; Cox's Latin and Teutonic Christianity; Kingsley's The Hermits; Tennyson's St. Simon Stylites.

[2] A. Rebours; Havelock Ellis: Affirmations.

[3] Lombroso: L'Homme Criminal, p. 161.

toxenus at the death of Cyrus, and that the Titans were anxious to stroll in the gardens of the gods. Such a spirit expects eternity to balance what time fails to adjust. The anarchist dreams of a day when there will be no law. The beggar finds a solace in the thought that Dives must suffer while he walks through streets of gold and drinks from crystal fountains.

Men find pleasure in the cap and gown, in titles and degrees, and in the stripes and badges of great societies, even while they smile at the 'stars,' 'honor rolls' and 'rewards' of the schoolboy; they love uniforms, coats of arms, chaplets, and medals of honor, but regard the 'brave' with his war paint and his girdle of scalps as grotesque. All these emblems help one to see himself as others see him, and are marks of attainment or efficiency. It is to seem imposing that the criminal sings and jokes as the hour of execution draws near, and such are the traditions among the children of criminals that both ambition and training lead them to seek death on the scaffold.[1] It is the opinion of Sighele that every form of crime is determined by egotistical sentiment.[2] Giles[3] declares that from it arise all the evils of moral nosology. To him the egotist is one who lives on self-esteem and who never outgrows his childhood. This implies self-unconsciousness, want of humor, and lack of ethical refinement. It is a view which must gain favor with careful examination.

In Chapter I, it seemed apparent that social feeling grows out of mutual contribution, consensus, companionship, and reciprocality of relations among men. In Chapter II, Section A, from studies of the characteristics of many solitary lives it was inferred that egotistical impulses forced the majority into solitude. In Section B the reasons for social standards have been shown, together with the fact that an extreme neglect of them through following blind personal impulse, is not only anti-social but criminal. The meaning of all the data can be expressed only in approximate terms. Nevertheless it seems to warrant the statement that there are two types of character that tend toward solitude:

1. Intensely subjective; lacking physical or moral force, or both; fleeing from men and hiding from them because of feeling powerless to compete with them; yet always pining for companionship and sympathy.

2. Intensely bold; self-approving; self-assertive; irritable, and able to do battle alone, if men fail to concede and to bestow what it exacts.

It also warrants the statement that the tendency toward a life of complete isolation is:

1. Directly proportional to the intensity and uncontrolled

[1] Dr. Paul Aubrey: Contagion du Meurtrir, p. 72.
[2] Moral Pathology, p. 62, *et seq.*

activity in the individual of the impulse to magnify or worship self.

2. Inversely proportional to the number and breadth of the interests which the individual recognizes as common to himself and society.

3. Inversely proportional to the clearness with which the individual perceives the reciprocality of his relations to society.

4. Directly proportional to the remoteness of matters of common social interest from the immediate personal desires or necessities of the individual.

III. Stages in the Growth of the Feeling of Solitude.

If it were not for the fact that an extreme form of loneliness involves not only separation from society but alienation from the self, it would hardly be admissible to group under the heading of this chapter, the four divisions which follow.

A. The Feeling of Solitude in the Country.

Every man has power to feel greater possibilities in himself than he can realize in practical life. The tiller of the soil sees himself the possessor of splendid physical strength and naturally desires to put things in motion; he does not succeed according to either his strength or his desires. Whenever he sits down to survey the situation, he finds that among his early acquaintances, those who are regarded as having won distinction, are the ones who turned their backs on rural life and sought a swifter way to wealth and influence. The summer visitor comes. The dweller on the farm sees better clothing, more leisure, apparent evidences of more ready money, a greater refinement of manner, and a greater fluency in conversation than are characteristic of the locality; he also hears descriptions of the charms and advantages of other places and, when the season is over, the old life is dull and the sum total of contentment is not increased.

In the process of domesticating nature, there were elements which kept the heroic and masterful spirit alive. Now no ringing axe, no crashing forest drive, demonstrates to men their power over nature. On the contrary, need of ready money has led the agriculturist to attempt to raise crops that leave the probabilities of success against the cultivator; drought, early frosts, parasites and pests; changing tariffs and the introduction of shoddy; the replacement of horses by the bicycle, the electric car, and the automobile have brought him the feeling that he is a special object of nature's caprice and a victim of industrial laws that he is powerless to change. So the burden of debt becomes heavier, the increased use of machinery affords

more time for brooding over hard fortune, and the result is lowered vitally, lack of will to work, and hostility to surroundings.

The rich possibilities of a life close to nature are but little appreciated where their meaning ought to be deepest. In any remote community, the slow speech, reluctant movements, and indifference to everything interesting in their environment, especially among young men, indicates a psychical marasmus which needs no confession of loneliness or of the desire to 'get away where there is something going on' to assure its progress.

Once the country had a full quota of social interests to minister to contentment and culture. The old time gathering at the wayside inn; the town meeting with its jests and debate, its primitive school of politics and sociology; the spelling school and the lyceum, are things of the past. Different methods of building, have banished the old-fashioned 'raising' with its communistic dinner and attendant sports, like boxing, wrestling, balancing and heavy lifting. Its dance in the barn floor, like the 'paring bee,' the 'husking,' and the 'house warming' are no longer known except in mild caricature.

A rich folk-lore also contributed to the general enjoyment and development. Rude sun myths and saws about the influence of the moon; the leaden hue of morning and the boreal light; the fancied connection between the birds and human destiny; the peculiar and almost magical character of plant and herb, did much to keep a living interest in the hearts of people and to shut out thoughts of a rural exodus like that of to-day, which has arisen partly from loss of objective interest through the intensity of subjective pain.

In Britain, according to the report of the Registrar General,[1] there has been a decline in arable land almost as startling as that exhibited by the abandoned farms in New England and in the older portions of the country generally. Among the French, Joly[2] says that the crimes of the peasants are due to solitary rumination over failing crops, destructive storms, disappointment, and monotony. Like his British and American fellows in misfortune, the French peasant breaks away from surroundings that have become torturing to him and tries to better his condition in the city. If he fails, he becomes misanthropic and robs, burns, or cheats as he is able.

The psychic principle underlying the facts in this section is that whenever, under any set of conditions, an individual fails to realize what he believes to be a due proportion between his

[1] L. Courtney: Nineteenth Century, March, 1888.
[2] La France Criminelle, p. 267.

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pleasure and pain, a feeling of alienation from the self that he never loses the impulse to become, results and migration follows.

B. The Feeling Awakened in the Prison and in the Desert.

What must be the nature of the transformation in the case of any one not a hardened criminal to make him feel dead to the world? The experience of an intelligent merchant who served a five years' sentence[1] in English prisons affords an answer that is typical.

Arrest awakened foreboding. The coming of the 'Black Maria' changed foreboding to gloom. The bang of the cell door seemed like a death knell. A period of despair followed. Like Captain Moray,[2] he was 'conscious but could not think' —a creature half animal, half vegetable, that neither saw nor heard, but only lived. He had always felt a horror of dirt. When he aroused himself from his stupor the cleanness and monotony of the cell were distracting. As the hand-cuffs were clasped upon his wrists on the day of his examination, he realized for the first time the function of free movement in personal independence, and felt choked at the thought of his physical humiliation. He was sentenced to nine months of absolute solitude at Millbank. When compelled to exchange his clothing for the prison costume he felt his personal identity going. This lostness of self was greatly increased when his hair and beard were shorn, and he felt no longer human when his name gave place to a number.

At Millbank he grew morose. A kind of anthropophobia seized him, and when he was transferred to Dartmoor he found himself trying to hide among the prisoners to avoid the eyes of the crowd. When his number was changed for another at Dartmoor, he suffered a return of the feeling which beset him when he lost his name. Although he was now where he had the companionship of men during the day, he could not recover from the painful sense of isolation which attended his solitary confinement at Millbank.

Other prisoners have mentioned the slowness of the hours, the monotony of the days, the awful oppressiveness of the silence, especially at night, when it is often a relief to cry out or beat the heels against the bed or stamp upon the floor. Some have had a horror of darkness; others have found the exclusion of friends and letters the hardest thing to bear. Nearly all mention the effect of contrasting associations. To think of happier days, to feel that others are free and healthy while one is powerless and slowly dying, is to be overwhelmed by a sense of great distance from humanity.

[1] Five Years of Penal Servitude: Anon., R. Bentley & Son.
[2] Gilbert Parker: Seats of the Mighty, p. 57.

This sense of distance, Mrs. Peary says, in her Arctic Journal, first came to her on Christmas; and Nansen, in his lectures, has mentioned it as so strongly characteristic of holidays in the North as to result in a temporary nostalgia. In describing a caravan journey from Egypt to Jerusalem by Sinai, Akabah, and the desert of Petra, Loti[1] notes the lack of stimuli for association in the desert. "No beast, bird, or insect; not even flies and gnats break the stillness: the hot white light of the sun upon the dunes is pitiless by day, and the yellow twilight is so depressing as to mingle an unutterable melancholy with the void." To him, silence, vastness, void and imperishability, are elements in a solitude that is maddening; to Father Ohrwalde,[2] the prospect of slavery, privation from society, and the thought of dying alone in the sands where the sun turns bodies into mummies, amounted to absolute isolation.

C. Child Hunger.

The best thought of the world has glorified the mother love. Convention has set no limit to its manifestations. It is honored everywhere. Its impulses are organic. If anything interferes with the normal course of a life that is richly moved by those impulses, a form of desolation results that has no parallel among the types of solitude thus far represented. The intense realism of doll play becomes serious when regarded as a kindergarten period for the highest of functions and the closest of companionships.

The 'Unlived Life of Little Mary Ellen'[3] is a story of facts that are known to many childless homes as well as to mental pathologists. In the first scene of the story a bridal party at the altar waits the coming of the groom. In the next, a woman who has not recognized any one for days, is asking the old physician why the groom came so late. It is her delusion that she was married and that her husband was called away.

In the family of her brother, a child is born and christened Mary Ellen. For a time, her aunt is delighted but the gloom returns. The deluded woman longs for a child of her own.

Christmas comes near and one day an expressman brings a golden haired doll for baby Mary Ellen but gives it to her aunt. She receives it with silent weeping, believes it a real child, fondles it, and carries it to the old physician when she is alarmed because it does not grow.

Women call her conduct 'scandalous;' men lounging at the post-office door, respectfully put on their coats when she drives

[1] Le Desert.
[2] Ten Years of Captivity in the Mahdi's Camp.
[3] R. M. Stuart: 'In Simpkinsville;' see also Haggard: 'Swallow,' Munsey's Magazine, June, 1898, p. 364-7.

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up the street; and boys who rail at the curate, grow quiet when she comes near. Delegates who go from the prayer meeting to induce her to cease her motherly offices, end by helping to keep up the illusion until an accident happens to the doll-child and the devoted mother finds it dead.

The story has within it a chapter of science. It contains data for explaining the wildness of women in prison at the birth of a child within cell walls. It suggests the ground of their pity for a child that is brought into prison for an early offence, as well as the reason why threatening to deprive refractory women of their children temporarily, proves so efficacious in reformatories.

Under the stress of this consuming hunger, more children are kidnapped than are taken for a ransom. It explains cases like those described by Griffith,[1] in which women protest that children entrusted to them for registration, are their own; like that of Mrs. Stone, who in 1815, stole a child from the arms of its mother on the street; and like that of Mrs. Magnus, whom Payn[2] describes. In the recent case of the kidnapping of Marion Clark in New York, the plea of the woman principal was that she desired a child of her own. The impulse to adopt children rests on something more fundamental to life than either charity or duty. The stealing of children where women are involved, represents this impulse gone mad. A strong proof of the correctness of the view taken in this section will be found in the fact that normal parenthood strongly favors sanity and serves to restrain mothers from suicide.[3] Futhermore, although the percentage of suicide is generally high among brain workers, women in charitable institutions, governesses, and female teachers in all grades, show a far lower degree of inclination to take their own lives than women who are not brought into contact with children.[4]

D. Time and Space.

Goss,[5] who studied hundreds of cases in the Southern prisons during the Civil War, says that infinitesimal changes in the visual field, coupled with what the soldiers imagined and feared when free movement was cut off and curiosity piqued, were what plunged them into despondency. In some vague form, the idea of space and time as objects of thought, combined with a feeling of utter subjective want, is bound to present itself, whenever one attempts to ask what the feeling of solitude really

[1] *Op. cit.*, Vol. II, p. 29.
[2] James Payn: Sunny Stories and Some Shady Ones.
[3] Morselli: Suicide, p. 237-8.
[4] Morselli: Suicide, p. 248.
[5] The Soldier's Story.

is. Dr. G. Stanley Hall's records[1] of fear of losing orientation, cosmic agoraphobia, and fear of solitude are suggestive here. A child waking for the first time in an empty room starts with a cry. He experiences a shock which returns with emphasis when, in later years, he chances to miss his way in a fog on some perfectly familiar hilltop and wanders in a circle. He has lost the customary means of marking out his relations to the objects about him because he cannot fix *their* relations. The bare peaks of the Sinaitic range, suggesting the concept of endless time and limitless space to Loti, made him wish to measure the infinite, yet they humbled him and oppressed him and filled him with eramiphobia. Pitcairn[2] says that a man deserted in the bush, thinks of his distance from civilization before he thinks of wounds or danger. In the early days of his imprisonment, Moray felt himself 'a point hung in space.' In the story of an African Farm, the thought of being poised on the summit of a pointed rock extending into the middle of the world, with 'nothing above but sky' and 'nothing below but air,' awakens the desire to pray.

All knowledge of self and things is relative. Personal orientation depends largely on objects in the visual field. In the presence of a desert, a prairie, a sea, or the sky; in an absolutely dark cavern, or on the summit of a mountain, a feeling of disproportionateness between the man and what he sees, overwhelms consciousness. Measurement is impossible; struggle useless. Paralysis of association results. Retrogression to a half-vegetative state like that of infancy follows. If the eyes be open, they do not see. They have neither fixation point nor accommodation. Their gaze is as vacant as in the early days after birth, as stolid as the frozen stare that follows death. All the life that there is, lies within. When that which has seemed real, abiding, and certain in the objective field becomes a blank, the psychic condition passes rapidly through a change whose nearest analogue is the bladder of air in a receiver from which the air is being exhausted. In the effort to expand itself to the range of its new conditions, the self finds itself only a loosely related mass of reflexes from experience, distrusts their coherence and their affinities, sees the flitting nature of consciousness, loses itself in the Unknown.

IV. The Effects of Different Degrees of Solitude.

Two classes of evidence are here presented; personal testimony and records which science and history have pronounced authentic.

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[1] *American Journal of Psychology*, Vol. VIII, 2.

[2] W. D. Pitcairn: Two Years Among the Savages of North Queensland.

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A. Typical Statements of Solitary Characters.

"Stupefied by doubts and fears, I led a life of gloomy despondency and might be said to vegetate rather than to live." (Alfieri.)

"It would have been joy to me to be smiled upon, loved, and cherished—to obtain what I was so ready to give—kindness and good will. . . . . All the while my heart has been full of sadness. Incapable of taking an interest in my talents for their own sake, I let everything slip as soon as the hope of being loved for them had forsaken me. I have been deliberately and systematically isolated—a hermit against my will . . . . I have not found peace in my solitude. Like cattle in a burning stable, I cling to the solitary life which does me such harm. . . . . At twenty, I was the embodiment of curiosity, elasticity, and spiritual ubiquity; at thirty-seven, I have not a will, a desire, nor a talent left. It is better that life should extend in ever widening circles, than that it should be perpetually diminished by solitary contractions. Outward radiation constitutes health; too continuous concentration upon what is within, brings us back to vacuity." (Amiel.)

"Fishes if they lie long on dry land, die; so monks who stay with men lose strength. As fishes hasten to the sea, so must we to the mountains lest we lose what is within." (Antony of Egypt.)

In his 'Praise of Knowledge,' Bacon lauds silence and solitude; in his 'Praise of Contemplation,' written three years later, he questions the benefits of solitude, and asks how one may be assured that in thought he is not adoring 'chimeras and imagination.'

"I have no friends. I must live alone with myself. My deafness forces me to live in exile. No one understands me, but whoever understands my music, will be relieved of the ills of mankind." (Beethoven.)

"They say my last writings are my best, thanks to my solitude no doubt. The prettiest flowers grow in the wildest woods." (Bersot.)

Burns, in a letter to Cunningham, describes himself as a "solitary hermit in a solitary room of a solitary inn, with a solitary bottle of wine, as grave and stupid as an owl . . . . tossed on a sea of troubles and blasted by hypochondria."

> "If solitude make scant the means of life,
> Society for me. Thou seeming sweet,
> Be still a pleasing object in my view;
> My visit still, but never my abode."
>
> —Cowper: The Task, I, lines 233–37.

"My greatest pleasure is to go to the churchyard to say my beads and meditate on that unending happiness which so many of my spiritual children are enjoying." (Father Damien.)

"No solitude no glory, is the motto where the priesthood of intellect celebrate their mysteries." (Daudet.)

"Solitude takes one away from the distractions of activity and the miseries of society, and leads him back to a fundamental unity; but it feeds his melancholy, because it brings vividly before his eyes the mirage of universal illusion. The contemplative faculties are developed in retirement, but at the loss of intellectual vigor and energy of feeling." (Guerin.)

> "I begged in vain for love and slightest alms,
> But the world laughed and offered me cold hate." (Heine.)

"I am affrighted by that forlorn solitude in which I am placed by my philosophy. Every one keeps at a distance. I foresee on every side, dispute, anger, calumny, and destruction. Within, I find nothing

but doubt and ignorance. . . . . I feel all my opinions loosen and fall of themselves, when not supported by others." (Hume.)

"Friendly looks and kindly actions are the only cure for sourness and misanthropy." (Robertson.)

"I care but little that I am growing old, but that I am growing old alone." (George Sand.)

"Contemplation both calms the mind and troubles it, since retirement gives a sense of infinite littleness in the self." (Scherer.)

"The jabber of men is as profitless as the yelping of a pack of hounds . . . . yet sympathy alleviates suffering." (Schopenhauer.)

"Still I am afflicted by solitude, which in my best state, was tormenting to me." (Tasso.)

"The reason of isolation is not that we love to be alone, but that we love to soar; and when we soar, the company grows thinner and thinner until there is none left." (Thoreau.)

B. Evidence from Records of Solitary Confinement.

In 1821, by an act of the State Legislature, eighty men at the Auburn prison were put into solitary cells to be 'without labor and without interruption.'[1] A year later, five were dead, one had thrown himself from a gallery, another was mad, and the rest were melancholy. Because their lives were believed to be in danger, twenty-six were pardoned and the remainder were set to work. The experiment of unbroken solitude was abandoned in 1823. In English prisons the results were even more disastrous. Of the Fenian leaders, locked up from 1865 to 1867 at Mountjoy,[2] nearly one-half died or went mad before the time of their release, and many others died soon after from broken health induced by solitary incarceration.

The general effects of imprisonment during the first few weeks are loss of appetite, loss of flesh, dejection, resentment, great irritability, and ennui, unless work is provided. Most prisoners call for it in order to kill the monotony of the days. Sleep is troubled; there are sudden starts and cries and fears of insanity. Some corner in the room assumes the shape of a spectre. It persecutes, perhaps makes plans to poison. A crushing melancholy settles upon the cell. Suicidal thoughts arise. The hypnotization of misery is complete. The least noises in the silence of the prison corridors are ominous. To Latude in the Bastile they were dying groans. In the 'Pozzi' of the Venetian Inquisition the rhythmical wash of the canal against the walls became torture. Pellico[3] had a period of seven days during which he felt himself mad and blasphemed and jeered at every one who showed a face at his window. Jane Cameron[4] had a similar experience, and rejoiced at it in maniacal song.

At Millbank Dr. Nicholson commented on the frequency of

[1] Luckey: Life in Sing Sing, p. 10.
[2] Dr. Robt. McDonnell: Political Prisoners, p. 62.
[3] Sylvio Pellico: My Prisons.
[4] Mary Carpenter: Memoirs of Jane Cameron, p. 511.

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delusions of poison, spectral hallucinations and visions, in prisoners on the approach of the day of execution. Griffith[1] notes the same fact in French prisons. In their troubled sleep, Cornet, Montcharmant, Campi, and Gamahut, saw images of sharpened knives and guillotines, and their own heads rolling in the bloody sand. These records could be duplicated in the history of the Place du Chatelet, Saint Germain des Pres, the old palace of Vincennes, and the keeps of Buchsal and Baden; if more evidence were wanting it could be furnished by the Spielberg, the cells of Austria, which once men never left excepting for chapel and school, and then with masks over their faces, and perhaps by every dungeon from the time when the walls of the Temple of Karnak first began to preserve records of guilt until humanitarians pleaded for prison reform and sociologists annihilated old theories of penology.

When long term prisoners near the expiration of their sentence little joy is manifest. In movement, automatisms control. The emotions have been calloused for years. The eyes have a vacant look. They are paralyzed and blinded by the sun; the moonlight leaves things hazy and indistinct. The form is thin; the step uncertain and infirm. Outside the walls a shrinking feeling comes, and sometimes the outcast returns to the walls which have sheltered him so long, although they have proved his ruin. Like other authorities, Dr. Guilliaume of Berne says[2] that solitary confinement ruins physical and mental sanity; and a writer in the Living Age[3] affirms that ten or twelve months in a cell is sufficient to destroy all companionability.

C. The Mutineers of the Bounty.

The Bounty, under the command of Lieutenant Bligh, sailed from Deptford for the West Indies in 1787. The lieutenant was overbearing and unjust, and a mutiny was started by Fletcher Christian, the mate. Nine men were landed off Tahiti and abandoned. With nine Tahitan men, their wives, and one child, the mutineers drifted to the Pitcairn Islands and formed a colony. After three years, Christian became gloomy and spent much of his time in a cave. Early in the fourth year, while two of the whites were in the mountains, the natives killed five of those remaining. When the absent men returned, one threw himself from a crag, and the other, being morose and threatening, was killed by his two companions in a quarrel. One of the survivors died of fever shortly after, leaving Smith, who took the name John Adams. This man became silent and meditative. He found

[1] Griffith: *Op. cit.*, Vol. I, p. 227, *et seq.*
[2] Proceedings of the St. Petersburg Prison Congress, Vol. V, p. 653.
[3] Volume LXXV, p. 352.

an old prayer book that had been brought from the Bounty, studied it, and became both patriarch and priest of the colony. He taught the Jewish ceremonies faithfully, and his colony, which now numbers about one hundred members,[1] has grown up in strict morality and commendable thrift.

The tendency toward insanity and personal violence in the mutineers will be recalled.

D. The "Wild White Man."

In 1803, William Buckley,[2] a gigantic convict of twenty-three, escaped from Captain Collins, who was bound for a penal colony in Tasmania. In 1835 Captain John Bateman discovered, among a company of blacks near Port Philip, a tawny chief of great size, who became violently agitated at the sight of the Englishmen. He tried to address them, but could not. They gave him bread, but he could neither recall its name nor tell them his own. When Captain Bateman repeated the name suggested by the tattoo marks on the arm of the savage, he recognized it, but pronounced it with difficulty. He had lived alone until the natives found him and made him a chief on account of his great size. He had done nothing for his tribe, and was rejoiced to return to civilization. He slowly regained his native tongue, and lived out his days as a constable at Hobart Town. He was always taciturn and melancholy, and he sometimes showed signs of relapsing into the barbarous life.

The vegetative condition, the motor and sensory aphasia, the moroseness, and the general change of personality are noteworthy.

E. Le Sauvage du Var.[3]

This man was a Savoy peasant who, in travelling through Paris and other cities, discovered that men strive against each other, and decided to retire into the forest to be 'nature's child.' At the time of his retirement, he was thirty-three years old, robust, moderately educated, and fairly intelligent.

When first visited by Dr. Mesnet, he lived in a hut made of poles and covered with turf. In it, he had a store of the seeds of the maritime pine, the wild vetch, and several varieties of edible roots which he styled "la pomme de terre sauvage." He declared that he felt no greater affection for his family than for all the world. When his visitor remarked his apparent lack of affection, he replied that he loved the earth, the mother who supplied all his needs, and that he had never married because the charms of women render one weak and indisposed to work.

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[1] Lady Fletcher: The Bounty Mutineers.
[2] Chambers' Journal, Vol. XXIX, p. 177, *et seq.*
[3] Dr. E. Mesnet: Annales Medico Psychologique, July, 1865.

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His ruling ambition was to make himself a coat from his own hair which he had cut each month and carefully saved for six years. When shown an account of his life in a Paris paper he manifested neither emotion nor interest, although he admitted its correctness.

He exerted himself only for his living needs. Although his every day hut was secluded, he had a better one near the highway, from which he could watch men when he chose to be nearer to them. His laws of life were: to live wholly upon vegetable food; to clothe himself from the products of his own body; and to ask nothing of men. Paraphrasing Mesnet, he had no bread, no books, no friends, and none of the comforts of civilized life; he did not enter seclusion from unhappiness, misanthropy, or religious impulsion; the compelling force was an idea. It was not realized, but he was always dreaming that it would be a little way in the future.

F. Caspar Hauser.

To what degree would the results be like those in the cases thus far cited, if children born with a normal organism and given food and light sufficient to sustain life, were deprived of the usual advantages of human intercourse? What psychic growth would be possible?

Perhaps no character ever aroused greater interest than Caspar Hauser. More than a thousand articles of varying merit have been written concerning him.[1] In the theatres of England, France, Germany, Hungary, and Austria, plays were founded on his strange story and many able men have figured in the history of his case.[2]

According to a letter which he bore when found at Nurnberg one afternoon in 1828, he was born in 1812, left on the doorstep of a Hungarian peasant's hut, adopted by him, and reared in strict seclusion.

At the time of his appearance in Nurnberg, he could walk only with difficulty. He knew no German, understood but little that was said to him, paid no heed to what went on about him, and was ignorant of social customs. When taken to a stable, he at once fell asleep on a heap of straw. In time it was learned

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[1] Antonius Von der Linde: Kasper Hauser.

[2] Among these were A. Feuerbach, the jurist; Daumer and Meyer, teachers of Hauser; Merker, the police captain; Fuhrman, the companion of his cell; Binder, the burgomaster; and Lord Stanhope, who took Hauser to his home and tried to educate him.

Of the works read by the writer, those of Daumer and Feuerbach seem the sanest, while that of Von der Linde is the most recent and the most complete. The respective titles are: Disclosures Concerning Caspar Hauser; Kaspar Hauser; Beispiel eines verbrechens am Seelenleben des Menschen; and Kaspar Hauser.

that he had been kept in a low dark cell on the ground; that he had never seen the face of the man who brought him food, that sometimes he went to sleep after the man gave him a drink; that on awaking he found his nails cut and clean clothing on his body; and that his only playthings had been two wooden horses with red ribbons.

When first found, he suffered much pain from the light but he could see well at night. He could distinguish fruit from leaves on a tree and read the name on a doorplate where others could see nothing in the darkness.[1] He had no visual idea of distance and would grasp at remote objects as though they were near. He called both men and women "Bua" and all animals "Rosz." His memory span for names was marvellous. Drawing upon the pages of Von Kolb[2] and Stanhope,[3] a writer in the Living Age[4] says that he burned his hand in the first flame that he saw and that he had no fear of being struck with swords, but that the noise of a drum threw him into convulsions. He thought that pictures and statuary were alive, as were plants and trees, bits of paper, and anything that chanced to be in motion. He delighted in whistles and glittering objects but disliked the odor of paint, fabrics, and most flowers. His hearing was acute and his touch sensitive at first, but after interest in him had lessened, all his senses showed evidence of rapid deterioration. He seemed to be wanting in sex instinct and to be unable to understand the meaning of religious ceremonies. Merker, who observed him secretly during the early days which he spent in jail, declared that he was 'in all respects like a child.' Meyer, of the school at Ansbach, found him 'idle, stupid, and vain.' Dr. Osterhausen found a deviation from the normal in the shape of his legs, which made walking difficult, but Caspar never wearied of riding on horseback.

His autopsy revealed a small brain without abnormalities. It simply gave evidence of a lack of development.

G. Feral Men.

To speak of children who have made the struggle for life with only animals for nurses and instructors, is to recall the rearing of Cyrus in a kennel and the fabulous story of the founding of Rome. Yet Rauber has collected many cases of wild men[5] and some of them, taken as they are from municipal chronicles and guaranteed by trustworthy writers, must be accepted as authentic.

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[1] Von der Linde: Kasper Hauser, Vol. II, p. 352, *et seq.*
[2] Kaspar Hauser: seine Lebensgeschichte.
[3] Materialen zur Geschicte Kaspar Hauser.
[4] Volume CLXXVII, pp. 451-465; Volume CXIX, pp. 375-381.
[5] Homo Sapiens Ferus.

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a. The Hessian Boy. Was discovered by hunters in 1341, running on all-fours with wolves; was captured and turned over to the landgrave. Was always restless, could not adapt himself to civilized life, and died untamed. The case is recorded in the Hessian Chronicles by Wilhelm Dilich. Rousseau refers to it in his Discours sur l'origine et les fondements de l'inégalité parmi les hommes.

b. The Irish Boy. Studied and described by Dr. Tulp, curator of the gymnasium at Amsterdam; features animal, body covered with hair; lived with sheep and bleated like them; stolid, unconscious of self; did not notice people; fierce, untamable, and indocible; skin thick, sense of touch blunted so that thorns and stones were unnoticed. Age about sixteen. (Rauber.)

c. The Lithuanian Boys. Three are described. The first was found with bears in 1657; face not repulsive nor beast-like; hair thick and white; skin dry and insensitive; voice, a growl; great physical strength. He was carefully instructed and learned to obey his trainer to some degree but always kept the bear habit; ate vegetable food, raw flesh, and anything not containing oils; had a habit of rolling up in secluded places and taking long naps.

The second, said to have been captured in 1669, is not so well described as the third which Dr. Connor in the History of Poland, says was found in 1694. This one learned to walk erect with difficulty but was always leaping restlessly about; he learned to eat from a table, but mastered only a few words, which he spoke in a voice harsh and inhuman. He showed great sagacity in wood life.

d. The Girl of Cranenburg. Born in 1700; lost when sixteen months old; skin dark, rough, hard; understood but little that was said to her; spoke little and stammeringly; food—roots, leaves, and milk. (Rauber.)

e. Clemens of Overdyke. This boy was brought to Count Von der Ricke's Asylum after the German struggle with Napoleon. He knew little and said little. After careful training it was gathered that his parents were dead and that a peasant had adopted him and set him to herd pigs. Little food was given him, and he learned to suck a cow and eat grass with the pigs. At Overdyke he would get down on his hands and knees and pull up vegetables with his teeth. He was of low intelligence, subject to fits of passion, and fonder of pigs than of men. (Anthropological Review, London, 1863, Vol. I, p. 21, *et seq.*)

f. Jean de Liege. Lost at five; lived in the woods for sixteen years; food—roots, plants, and wild fruit; sense of smell extraordinarily keen; could distinguish people by odor as a dog would

recognize his master; restless in manner, and always trying to escape. (Rauber, *op. cit.*, p. 19, *et seq.*)

g. The Savage of Aveyron. After capture was given into the care of Dr. Itard by Abbe Sicard. Dermal sense duller than in animals; gaze wandering; language wanting and ideas few; food—raw potatoes, acorns, and fruit; would eagerly tear open a bird and eat it raw; indolent, secretive; would hide in the garden until hunger drove him to the kitchen; rolled in new snow like an animal; paid no heed to the firing of a gun, but became alert at the cracking of a nut; sometimes grew wildly angry; all his powers were then enlarged; was delighted with hills and woods, and always tried to escape after being taken to them; when angry would gnaw clothing and hurl furniture about; feared to look from a height, and Itard cured him of spasms of rage by holding his head out of a window; met all efforts to teach him with apathy, and learned but little of language. (All the Year; Vol. XVIII, p. 302, *et seq.*)

h. The Wolf Children of India. The two cases described by a writer in Chambers' Journal and by Rauber were boys of about ten years. Both ate raw food, but refused cooked food; one never spoke, smiled or laughed; both shunned human beings of both sexes, but would permit a dog to eat with them; they pined in captivity, and lived but a short time. (Chambers' Journal, Vol. LIX, p. 579, *et seq.*)

i. Peter of Hanover. Found in the woods of Hanover; food—buds, barks, roots, frogs, eggs of birds, and anything else that he could get out of doors; had a habit of wandering away in the spring; always went to bed as soon as he had his supper; was unable to walk in shoes at first, and it was long before he would tolerate a covering for his head. Although Queen Caroline furnished him a teacher, he could never learn to speak; he became docile, but remained stoical in manner; he learned to do farm work willingly unless he was compelled to do it; his sense of hearing and of smell was acute, and before changes in the weather he was sullen and irritable; he lived to be nearly seventy years old. (The Penny Magazine, Vol. II, p. 113.)

j. The Savage of Kronstadt. Of middle size, wild-eyed, deep-jawed, and thick-throated; elbows and knees thick; cuticle insensitive; unable to understand words or gestures perfectly; generally indifferent; found 1784. (Wagner: Beitragen zur philosophischen Anthropologie; Rauber, p. 49-55.)

k. The Girl of Songi. According to Rauber, this is one of the most frequently quoted of feral cases. The girl came out of the forest near Chalons in 1731. She was thought to be nine years old. She carried a club in her hand, with which she killed a dog that attacked her. She climbed trees easily, and made niches on walls and roofs, over which she ran like a squir-

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rel. She caught fish and ate them raw; a cry served for speech. She showed an instinct for decorating herself with leaves and flowers.

She found it difficult to adapt herself to the customs of civilized life and suffered many fits of sickness. In 1747, she was put into a convent at Chalons. She learned something of the French language, of domestic science, and embroidery. She readily understood what was pointed out to her but always had certain sounds which were not understood. She claimed to have first begun to reflect after the beginning of her education. In her wild life, she thought only of her own needs. She believed that the earth and the trees produced her, and her earliest memory of shelter was of holes in the ground. (Histoire d'une jeune fille sauvage trouvée dans les bois à l'âge de dix ans; Magazine der Natur, Kunst, und Wissenschaft; Leipzig, 1756, S. 219–72; Mercure de France, Dec. 1731; Rudolphi: Grundriss der Physiologie, I, S. 25; Blumenbach: Beitrage zur Naturgeschichte, II, S. 38.)

To the cases cited, there might be added: that of the Hungarian Bear Girl, the Boys of the Pyrenees, the Wild Boy of Mt. Pindus, and others less minutely described. The present significance of all these cases becomes greater when we compare them with

The Imbecile Type. According to a consensus from the studies of Shuttleworth, Warner, Beach, Ireland, Cameron, Tuke, Seguin, Voisin, Peterson, and others concerning idiots and imbeciles, the stigmata of such a defective state are: anæsthesia of the dermal sense, dullness of hearing and sometimes of sight, inability to fix the attention, aboulia, jealousy, want of sex instinct, incapability of companionship, motor and sensory aphasias, great susceptibility to rhythm and music, and a tendency to imitate others.

Peterson,[1] quoting Wildermuth, says that in the lowest degree, idiots are purely vegetable automatons in their reactions. Sollier makes imbeciles "abusive, unstable, irritable, boastful, vicious, and extremely egotistical." Some show no sensitiveness to changes of temperature and some are torpid in winter.[2] In the Royal Albert Asylum, forty per cent. become self-supporting in useful employments. The institutions of Denmark, Germany, Norway, and Sweden, report considerably higher percentages.[3]

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[1] Frederick Peterson, M. D.: Psychology of the Idiot; Am. J. Insanity, July, '96.

[2] Jules Voisin: L'Idiotie, p. 20.

[3] The Feeble Minded: Council of the Charity Organizations of London, 1893.

From our records of long terms of solitary imprisonment without labor, we have learned that they are attended by a form of physical degeneration, a hebescence of the sensorium, a paralysis of the emotions, and a destruction of the will, which places the convict on his release, in a condition but little better than that of the imbecile. The effect of the confinement and the isolation is said to be far greater upon the prisoner who has enjoyed the advantages of culture than upon the born criminal.

The savage du Var shows such a tendency in the narrowed sphere of his daily reactions and in his want of sex instinct. His fixed idea of making a coat from his own hair gives evidence of a lack of balance that denotes an incipient insanity. His silence is probably not unlike that which marked the early stages of Buckley's gradual forgetting of his native tongue and becoming unable to pronounce the words of it save with difficulty. Caspar Hauser and the Feral cases give striking proof of the development of the senses and instincts that minister immediately to the needs of existence; they show as strongly the strenuous efforts of nature, even under the most unfavorable of conditions, to bring about a degree of physical adaptation sufficient to make life possible.

They also impress the fact that when the vital reactions have become established, they can vary only within narrow limits, during an ordinary lifetime. Of the sixteen cases of wild children, thirteen speedily succumbed to the exactions of civilized life. Only three—Hauser, Peter of Hanover, and the girl of Songi, attained any degree of culture. What gain there was, came at the cost of great disturbance to the physical organism. There was only slight psychical growth, and only two acquired the power to use language at all. The percentage of ability developed for self-support in these cases was less than one-half that developed among imbeciles.

If it be fair to make inferences concerning the solitary life from the data of this chapter, there can be no question in regard to the validity of the following:

1. When a man is left free to act according to his natural impulses, the tendency toward motor operations diminishes in proportion to his approximation to complete solitude.

2. The tendency of solitary life is to produce a vegetative condition of the organism and to cause automatic reactions.

3. The rapidity with which one in isolation falls into a vegetative condition, depends on the number and character of the associations which he has when he isolates himself and upon the purpose and feeling with which he enters into retirement.

4. Solitary confinement, when long continued, tends to de-

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stroy physical and psychical health and to render companionship impossible.

5. When human beings are deprived in early years, of natural care and associates, and without aid, are forced to rely on natural instincts in the struggle for existence, life is still possible under certain conditions, but in type it is lower than that of animals and is capable of but little culture.

V. The Desire for Companionship.

Sex affinity, mutual association for the purpose of obtaining food, warmth, shelter, defence, and other similar forms of attraction, are powerful forces in bringing men together, but outside of their province there is something which, though vague, seems to have a character and function of its own in producing the same result. It is a hunger for presence and intercourse perhaps not unlike that which binds the units in a cell colony together.

It would be difficult to tell how this sense awakens. In his study of the 'Early Sense of Self,' Dr. G. Stanley Hall notes the tendency in infants to make unilateral movements and later the surprise which they manifest when hands are brought together, feet are discovered, and new contacts are thus opened for the first time.[1] Is it not possible that the first faint glimmerings of a social feeling are awakened in this manner long before the infant has realized that his complementary halves form a whole? Let it be granted that this question must wait for a positive answer; the testimony of mature men concerning the desire for companionship will serve to show how deeply rooted it is and compel acceptance.

Bernardius[2] loved to walk with Ludovico, for his conversation gave life to the crumbling Colisseum, the ruined aqueducts, and the palaces of the Roman Emperors; it brought a glory to the Carrara which butchers were using to make shelves for meat, to the sarcophagi, fallen to the function of wash-tubs, and to the temples of the gods, which had become stalls for cobblers and shops for smiths. In his Italian prison, Pellico gained new life when he could wave a handkerchief at a fellow prisoner and his spirits rose at the mere sight of a human being. He pricked his finger to write to Oroboni and declared that if his friend refused to answer in obedience to prison orders, he would still climb to his window and talk to the birds and the sky. Maroncella forgot fever and hunger, chains and darkness, guards and threats, and sang to assure Pellico that he was still alive.

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[1] *American Journal of Psychology*, Vol. IX, pp. 351-395.

[2] Ernest Eckstein: A monk of the Aventine; Tr. by Helen Hunt Jackson.

"The desire to behold some one is irresistible in the solitary prisoner."[1] So is the desire for intercourse. Between the Conciergerie and the Cours des Miracles, a haunt of thieves, there was for a long time a system of communication by means of hunting horns.[2] Dostoieffsky mentions something similar in the prisons of Russia. Dumb alphabets, secret signals, eye telegraphy, taps on the floor, beating upon walls and pipes, and hiding notes in the hair of prison dogs have been commonly employed to still the social craving, and prisoners who have learned and used these are said to have been less sullen and refractory than those who have not. Helen Zimmern[3] describes cases from Lombroso's Palimpsests from Prison Life, in which one convict advises another to feign madness in order that he may be taken to the infirmary where he 'will not be alone.' It is a reminder of the Persian Proverb, 'Death or a friend.'

A. The Pets of Solitary Characters.

Isolated people must have companionship. If men are out of reach they make mice answer. Moray had such a companion. A French fratricide tamed a field mouse, and made a mill for it to turn. The younger Crebillon shared his food with a rat while in the Bastile.[4] Alejandro, an Italian 'Jack-the-Ripper,' tamed a rat, put rings in its ears, taught it tricks, and tied it by a cord to his jacket. When he was not allowed to take it to the court room he refused food, and was silent and moody.[5] When asked why he made a pet of a rat, he replied, "Because I was so lonely." Dostoieffsky befriended a blind cur in spite of Russian superstition, and Wainwright could not bear to be separated from his cat. In a Philadelphia prison Dickens found a man keeping rabbits. Griffith[6] gives many examples of the fondness of prisoners for birds. A prisoner in Toulon taught a sparrow with the greatest patience and gentleness. The 'Sorrows of an Old Convict'[7] gives a graphic picture of the grief of an old man on a prison ship bound for New Caledonia, because an accident had killed the sparrow which had shared his cell for a year. Another unfortunate found in a blackbird, mate, audience, diviner, physician, and friend, and dedicated to it an intelligent volume written in prison. Some Russian prisoners took delight in a horse and a flock of geese that always went out in the morning with the gangs. The same men tried to

[1] Sylvio Pellico: My Prisons, p. 254.
[2] Chambers' Journal, Vol. XII, p. 185.
[3] New Review, Vol. V, p. 543.
[4] Sur le Bastile, p. 4.
[5] Griffith: *op. cit.*, Vol. II, p. 275-9.
[6] Griffith: *op. cit.*, Vol. II, Chap. IX.
[7] Pierre Loti: Book of Pity and of Death, p. 15, *et seq.*

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tame a young eagle that they found with a broken wing, but his stubborn spirit and moping in confinement induced them to set him free. In the summer they found pleasure in making wreaths for a goat in the prison yard, and in the winter it was a diversion to smooth and align its horns. Some have tamed spiders, and others even ants and flies. As between 'Roger and his dog,[1] eating, drinking, and starving together,' make for inseparable bonds, and so beneficent is the influence of pets that stolid officials have never forbidden the keeping of birds by prisoners, even in the French Bagnes.

Outside of the restraint of iron bars and walls of stone people living retired lives have had a strange fondness for pets. A missionary on the Cape of Good Hope was fond of a puff adder. A literary man of note was restored from a fit of melancholy by becoming interested in a tiny lizard which hatched upon his study table.[2] Dogs and horses were the favorite pets of Dryden, Kingsley, Scott, Pope, and Byron. Cowper kept doves, goldfinches, and hares. Mrs. Browning found pleasure in doves and in her dog Flash. Hood gave Lamb a dog as a companion for his lonely walks. Collins petted white rats in his study and a blackbird in his garden. Lord Clive made a pet of a tortoise, some frogs, and a hedgehog. Berkeley delighted in a weasel, and Buckland tamed a suricate.[3] Others have kept iguanas, prairie dogs, squirrels, and brown opossums. Sometimes in the prison a struggling plant or a grass-blade has been almost worshipped. Moray saw a reflex of his own life in the sickly corn which he cultivated, and 'Picciola,' the 'Prisoner's Flower,' turned Charnay from a misanthrope into a lover of men, saved him when sick, and ransomed him from prison.[4]

B. Imaginary Companions.

"Isolated people must have companionship."[5] When human companions are wanting and pets are not available, imagination steps in to supply whatever defect there is. In his study of the 'Only Child'[6] Mr. E. W. Bohannon presents fifty cases of imaginary companionship in children. Clara Vostrovsky[7] shows how infancy sees these phantoms, hears them speak, and forgets them when busy with living friends. Names are given them. They play, talk, get angry, and run the whole gamut of passion. They are often complementary personalities. At

[1] J. T. Trowbridge: The Vagabonds.
[2] Chambers' Journal, Vol. XII, p. 173.
[3] Chambers' Journal, Vol. LIV, pp. 131 and 696, *et seq.*
[4] X. B. Saintine: Picciola.
[5] Chapter V, Section A.
[6] *Pedagogical Seminary*, Vol. V, No. 4, p. 491.
[7] Education, Vol. XV, p. 393.

such times they represent what the child desires to be, or become a scapegoat for his misdemeanors. Some of the records in the Worcester collection[1] nicely illustrate the great versatility of these phantom personalities.

During a special experiment of two weeks in the forest, in order to see what the effect of being out of sight and sound of all other human beings would be upon himself, the writer found himself, at the beginning of the second week, tracing resemblances between some of the trees and certain men with whom he had worked, and noting the increased feeling of sociability which resulted. He also found that although silent and feeling no inclination to talk during the first nine days, and although having no thought of loneliness, during the remaining days of his stay he often found himself reciting aloud, selections unrecalled for years. Is one sense a companion for another in some degree? Is the personality a more perfectly knit unity because through speech the psyche is able to hear itself think? When alone, does one unconsciously project consciousness by means of vocal utterance so that it returns to itself reinforced by a sense of otherness because of the relation between thought and audition? Something of this nature would help to explain why many adults indulge in the habit of talking to themselves, why boys whistle in the darkness to keep their courage fresh, and why children are interested in echoes. Metabolism makes the mood and the nature of the mood determines the character of the companion. Just as childhood surrounds itself with bright images of imagination, in the prison and in the insane asylum, a childhood whose joys are worn out, surrounds itself with unhappy and revengeful spirits which whisper and plot and delude it.

The echoing prayer in the desert and the muttered ritual in the mountain, assured the monk of the companionship of divine spirits and socialized the cell. Perhaps personal loneliness presents a motive for the conception of gods and for giving them objective form, as fundamental as that of Spencer, and naturally predisposing men toward animism.

C. Production in Solitude.

In prison, means must be extemporized. Instruction is unnecessary. Griffith says that solitary confinement is "so good an instructor that very little time is needed for teaching prisoners a trade." They go to work without squares, gravers, stamps, patterns, or models. Every scrap of glass or metal, every nail and pin turns to account as a tool. Waste from the shops, bones from the kitchen, walnut, cocoanut, and acorn shells,

[1] Child Observations in the Worcester Normal School.

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feathers, locks of hair, the bark of trees, pebbles, every kind of fragment affords material. Tin plates, the bowls of spoons, stone jugs, old bottles, dippers, bed posts, table tops, cell walls, and the bottoms of chairs, serve for canvas and parchment.

a. Manual Production.

When Charnay found himself dying from ennui, he resolved that his hands should dispel his misery. From a curtain which he had been permitted to take to his cell, he picked out the threads of linen and of silk and assorted them according to color and length of fibre. He made whistles of wood, pipes of straw, men-of-war from walnut shells, and wind harps from elastic drawn from his suspenders. For a time, his handiwork gave him pleasure, but when he saw that it no longer afforded him the diversion of constructing it, he crushed it beneath his feet and turned again to work. He made baskets and chests from the seeds of stone-fruits, carved arabesques and intaglios upon his table, church pulpits, roofs of houses, fantastic designs like fishes swimming in tree tops, boats floating on towers, huge flies and chaotic hieroglyphs. Then he turned his thought to progressive scenes and symbolical designs in series, and later still, to puzzles, problems, and enigmas.

In the prisons of Belgium, men under long sentences once turned to carving in wood and stone. One prisoner constructed a clock that moved a pasteboard image which the maker delighted in calling his prisoner.[1] A Swedish convict made a harmonium with keys of bone from the kitchen table. Garath, of Toulon, built chapels and engaged in stringing rosaries. In the Bagnes of France, those unfitted for hard work, and others after working hours were over, plaited hair into chains and rings, adding bits of glass or odd pebbles for settings, as prisoners during the Civil War whiled away the hours in polishing stones and making trinkets of wood and bone. In Toulon, convicts fashioned mats and boxes from straw and made shells into cups and bones into buttons. Marie 'la Rose' who was insensible to all around her when the perfume of roses came to her, and who was committed to the Conciergerie for stealing them, made roses of colored paper, other prisoners imitated her, and thus the making of artificial flowers was suggested as an industry for female criminals.[2] Russian convicts killed straggling dogs and made their skins into boots, which were exchanged outside the prison for luxuries.

When production is impossible, motor effort allies itself with some form of abstraction. Havelock Ellis[3] gives a record from the cell of Horseley: "21,000 times I have walked around

[1] Griffith: *op. cit.*, p. 94.
[2] Chambers' Journal, Vol. XII, p. 187, *et seq.*
[3] The Criminal, p. 174.

this cell in a week. 3,330 bricks in this cell. 131 black tiles, 150 red tiles in this cell." Jane Cameron often made the circuit of her cell 300 times at night to induce sleep. In a Russian courtyard, a prisoner used to count the posts in the fence which shut him off from humanity, omitting one for every circuit of the yard. He was interested in making this a unit for counting off the days of his sentence. Bonnivard spent his time in walking the three steps which his chain left possible and the six inch groove which he left in the stone floor, marked his heroic four years' fight for life. Domitian killed flies in prison; Gerhardi counted the facets of their eyes; Mulgrave reared chickens; Ducret measured the Alps; Galileo studied the stars from his cell window; Pellico studied German, read the bible, and committed to memory every day, a passage from Dante. Robert Emmet studied mathematics, science, and Shakespeare; Gray and Duffy practiced fencing and elocution, and Meagher busied himself with his manuscript while waiting execution for high treason.

Prado passed his hours in reading *le fils du diable* by Feval[1] while Charles Peace preached to the wardens on the results of yielding to evil passions. Francis of France, like Jugurtha in the Mamertine, did nothing and died of melancholy. Troppman, the murderer, wrote the history of his crime. Cavaglia engraved the scenes of his guilt and his suicide, on a jug. Many others have been equally graphic. In every solitary cell that has known a captive for a long term, epigram, dialogue, praise of crime, curses against law, and cynical expressions in various languages show that motor effort at last passes into some form of abstraction.

B. Artistic Production.

In confinement, both sexes tear pictures from books and papers to paste them on the walls of their cells. It helps to make companions for their loneliness. This usually precedes artistic production. If art had not this effect and if it were not to be considered as language, the impulse to write biography in the prison would result in biography before painting. Prison art is a social occupation; its æsthetic merit is essentially low. Human figures make the greatest percentage of the designs. Men draw female figures; women, heads of men, hearts on fire, lovers before Hymenæus. In French prisons,[2] Lombroso notes the frequency of designs like two united flowers, leaves or hearts. In general the subjects differ but little from the designs that are popular in tattooing. In the old Eastern Penitentiary at

[1] Griffith: *op. cit.*, Vol. II, p. 230.
[2] The Female Offender, p. 121-2.

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Philadelphia, Dickens[1] found a man who had extracted colors from yarn and painted figures upon the walls, while a German convict had painted the whole of his cell. In rare cases, like that of Ostade, a prisoner does truly artistic work.

Sculpture and painting, according to classical types, would scarcely have been possible without isolation and those who became masters of silent expression seem to have grown incapable of any other. Andrea da Fiesole grew solitary as he grew in art. Contucci, the master of sculpture during the last half of the fifteenth century, drew in sand and modelled in clay while tending a herd. Baccio d'Agnolo rarely left his workshop, and Fra Giocondo attained his renown in architecture almost as much apart from men. Corregio was timid and anxious and worked in retirement. The same is true of Giovanni da Fiesole, Filippo Lippi, Perugino, and Leonardo da Vinci.

Giotto, Zurbaran, Sassetti, Pisano, Lombardi, Caracci, Guido, Gaddi, Vorstermann, and Girolamo de Treviso, lived and idealized the scenes of the silent life, and nearly all of the two hundred artists described in Vasari's six volumes[2] worked out some conception of solitude.

c. Literary Production.

Poetry and biography are the final avenues by which prisoners attempt to escape from their misery. The former is perhaps the more frequent because rhythm is a conserver of emotional life, but the latter represents the means by which Loti's "instinct to struggle against death" finds its best expression. Occasionally a convict aspires to pure philosophy.

In the prisons of France, Spain, and Russia, poems are very numerous. Sentiment, revenge, stoicism, melancholy, religious thought, and apostrophes to darkness are apparent in these.[3] The spirit of the dungeon breathes in the following lines in Fifteenth Century Catalanian which are quoted here from the English Illustrated Magazine.[4]

Qui no sab de sospirar
Vinga sen assi estar
Car no sol sospirara
Mas de dolor gemira
La mort y sera plus plaent
Que sofrir i tal turment
—— piger esque morir
Que joen ayxi languer.

"He who sighs hath never known,
Come within these walls of stone.

[1] American Notes.
[2] Lives of Famous Artists.
[3] Dostoieffsky: Records of the Dead House: Prisons of Europe.
[4] Volume VII, p. 382.

Here not only shall he sigh,
He shall groan in misery.
Sweeter far were it to die
Than in torment thus to lie;
Drear is death but far more drear
Day by day to languish here."

Antonio Villa composed poetry in the Piombi. Villon's 'Two Testaments,' 'Jobelin,' and many other poems were produced in prison. Maroncella wrote thousands of verses and committed them all to memory. Pellico composed his Ester d'Engaddi, Iginia d'Asti, Tancreda, Rosilde, and his third tragedy, Leoniero da Dertona, during his long sentence.[1] Davitt,[2] De Laurent,[3] and Lombroso,[4] name many cases of prisoners who like Cellini and Paul Verlaine, or the brigands, Corani and Milano, have distinguished themselves at versification.

Mary, Queen of Scots, wrote the "Last Prayer" in a cell, and Elizabeth, like James I, of Scotland, found a solace in making verses. Davenant composed "Gondibert" while on the Isle of Wight, and Madam Roland spent nine years upon her Memoirs while awaiting execution after the fall of the Girondins.[5]

Vidocq wrote his memoirs in a dungeon, and Lacenaire and Holmes were similarly employed under the shadow of the executioner. Abaddie, another murderer, wrote a treatise on social reform.

The political prisoners, Cobbett and Leigh Hunt, continued at journalistic work throughout their incarceration.[6] Daniel O'Connell attempted a history of his life and times. To beguile his enforced leisure Sir Roger L'Estrange wrote "The History of an Imprisoned Royalist," and Sir Walter Raleigh ambitiously began his "History of the World" in the Tower of London.

Thomas Aquinas brought out a Digest of Theology and a Book of Sentences from his two years in the cell. Saint Nilus wrote the Greek Hymns to Saint Benedict while hiding from the Saracens at Monte Cassino. Paul addressed the Epistles to the Ephesians, Colossians, and Philippians from Rome.

Boethius did literary work in prison. Voltaire completed a part of the "Henriade" in the Bastile. Paradise Lost, Judas Maccabæus, and Artistry's Ideal[7] arose from the isolation of blindness. Don Quixote is a shoot of the prison, and Bunyan's pictures of hope and despair sprang alike from the gloom of the

[1] *Op. cit.*, p. 84.
[2] Leaves from a Prison Diary.
[3] Les Habitués des Prisons.
[4] L'Homme Criminel.
[5] Calendar of Great Men, p. 454.
[6] Geo. Siegerson, M. D.: Political Prisoners at Home and Abroad.
[7] Girard de Lairisse.

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cell. Dante, Swift, Wordsworth, Spenser, Southey, Byron, Victor Hugo and Balzac, did much work in retirement. Carlyle wrote the History of the French Revolution and Sartor Resartus while apart from men, and the "Meditations" of Marcus Aurelius, and the "Confessions" of De Quincy, like "In Memoriam" and some of the strongest work of Charlotte Bronte, indicate the ripening effect of quiet hours. Kant was secluded, too, when he was at the building of his great system, and never left his study excepting to take a short walk in a retired lane. Hegel was seeking a publisher for his Phaenomenologie des Geistes on the day of the battle of Jena.

If we go still further into the past, tradition tells us that the first attempt at English poetry was made by a herd-boy in a cloister at Whitby, and that from Wearmonth, Beda brought out the first prose work written by an Englishman. The first printing press used in Italy was set up near the Sacro Speco of Benedict's seclusion, and the first one used in England was operated in the monastery at Westminster.[1] The Alexandrian Library was founded because sickness drove Ptolemy to Strato, by whom he was interested in study. A Benedictine established the library at Calabria, and Arizzo, a brother of the same order, is said to have founded the first school of music.

To a paleontologist, fossil prints reanimate the past. Human inscriptions, human symbols, or human traces, socialize any place. Yet like Virney[2] who, after awaking to his own loneliness in Rome, determines to make a circuit of the world if need be, in order to find a companion, the solitaire must have something to assure him of the fidelity of his own powers in an environment that is uncongenial and unnatural. So every trifle wrought in confinement; every color stain upon prison walls; every nonsense couplet; and every attempt at biography or philosophy, represents an effort of loneliness to people the waste of hours to which the physical presence of others is denied. It is an effort to multiply the spirits of one's own personality when all other avenues of intercourse are closed. These records of the prison, the cloister, and the lonely study, indicate that the desire for companionship is one of the deepest and most widely irradiated known to the consciousness of man.

In its effort to obtain satisfaction.

1. When left free to function normally, it seeks reciprocal relations with companions of the same genus and race and with similar culture and interests.

2. When relations under such conditions are impossible, it makes pets, accepting any creature that is harmless and that returns confidence for care.

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[1] Mrs. Jameson: *op. cit.*, p. 30.
[2] Mary W. Shelly: The Last Man.

3. When friends and pets are wanting, imaginary companions, come to fill the void.

4. When all the preceding means are insufficient to divert the mind; (a) Motor effort is invoked to transform mental images into objective shapes; (b) More abstract representation with the pencil and brush follows and artistic production results; (c) The still more abstract form of representing thought and life in symbols succeeds and the solitaire becomes an author.

VI. Social Life and Individuality.

A writer whose works have been much discussed during the last few years, had a habit of protesting in cases where the opinion of another coincided with his own. "Don't! When people agree with me, I always feel that I must be wrong!" When Antisthenes said this with a sneer, people called him a brute and a boor; they call his modern imitator 'original' instead of calling him mad.

This palpitating horror of consensus finds encouragement in certain sweeping statements of social psychologists. One can readily accept Le Bon's statement that the conscious life of an individual is only a trifling fraction when compared with his unconscious life, but it is not so easy to believe that one in a crowd "is no longer himself but an automaton who has ceased to be guided by his own will."[1]

Every habitual action builds something into an unconscious philosophy. Each man who does anything, absorbs something from his daily experience and endeavors to adjust it, so far as it may seem advantageous, to the sum of all that has been assimilated from the experiences of previous days. Every principle abstracted from the movements of practical life finds its most harmonious application in the sphere of the conditions which produced it; therefore, although Le Bon's assertion might be true of one who has lived in isolation, it would not be true of one who mingles daily with a throng, since the inhibitive power of earnest attention makes such a one insensible to all forms of stimulus save those which seem to offer assistance in the solution of the immediate problems with which he is engaged, or others to which these are incidental. No one hears the clicking of telegraph instruments when writing a message. The roaring of wheels and the screaming of whistles are soon lost when one reads a book or studies a manuscript or plans a business deal on a train. Crowded streets and pushing carriages awaken no fear and create no confusion in those who are accustomed to them. The man trained to the crowd is isolated from it by habit, and he is not available to it for any form of

[1] Le Bon: The Psychology of Crowds.

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action that does not relate to some need or desire which has been previously auto-suggested in the field of his normal activity. In the crowd, then, a man is not to be feared when he is not himself but when he is most distinctly himself and reacting against the pain, of which he feels that he has had enough, in the direction of something that he feels will replace it with a fuller enjoyment. Le Bon forgets that neither a Ney, Murat, or Garabaldi; nor a Paul, Mahomet, Washington, or Lincoln, could ever move a crowd to action until he stood for something which every man in it had many times instinctively stood for to himself.

Every effort in the art of persuasion is in accord with the conclusion reached above. The methods of real estate men in booming city extensions; the speeches of campaign orators; the promoters of Klondike expeditions; the logic of life insurance agents; and all attempts to change the opinion of an individual or a party, aim at the reawakening of impulses to action often vaguely suggested before. When Antony made his masterful funeral oration he first asked for silence. That meant "restricted motion," perhaps the most important of Sidis's[1] principles of suggestibility. Then he awakens natural desire and gratitude. He cannot make the "affirmations" which Le Bon declares the first step toward moving a crowd, but he employs the principle of rhythm,[2] and when impulsive automatisms find a common ground in common sympathy, interest, and remembrance, the crowd, transformed into a mob, is ready for violence, and does it.

Is it true that social life produces apes, automatons, puppets and nonentities? Is it true that social exactions destroy personality? Is it true that as civilization and social institutions become more stable and laws grow more rigid individuality is crushed out?

All must admit that the exacting codes of business, like those of social life, make men seem alike in thought and manner when they meet, but although the topics of conversation are the same, the views of each two are different because varying experiences have left nothing possible but different associations. It may be granted that some people may grow to idolize mechanism, and that there is cause for essays on the vanity of "Social Screaming,"[3] but in such people and in such a diversion we have not the type of the demos. This great parent of the collective will always finds pleasure in the new thoughts, new scientific truths, and discoveries of any of her sons. The advanced thinker is no longer a foundling at the palace gate of a monarch. Pict-

[1] Dr. Boris Sidis: The Psychology of of Suggestion, p. 311.
[2] Le Bon's principle of "repetition."
[3] Charles Dudley Warner.

ures of Plato show Dionysius in the background; the greatness of Aristotle suffered no less from the influence of Alexander; Solon deserved immortality, but Crœsus helped men to discover it; Simonides was a debtor to the patronage of Hiero, Seneca to Nero, and Plutarch to Trajan; Augustus started Virgil on the road to immortality, and Shakespeare was fortunate in having his lot cast in an Elizabethan Age; but to-day mankind adopts the possessor of a new idea without the formality of an introduction, forgets to inspect his coat-of-arms, and neglects to ask the name of his tailor. It is not because individuality is declining that people do this, but because that, in some way, the world has risen to a larger view as to what individuality is, and has found, with Caird, that it consists in "the consciousness of self in relation to other things and beings, and in unity with them."[1]

That form of personality which is happy with social forms is only one of many personalities which, in their unity, constitute a self. Individuality is a relative quantity. Instead of destroying it, social life furnishes the only condition under which it can develop. It is a harmony essentially unique though evolved from a multitude of diverse reactions, and Chapter IV, Sections 'F' and 'G' shows what must invariably happen in *any condition* to which these are wanting.

Social life makes both for solidarity and for individuality. Rene Worms recognizes the fact when he says that "the common conditions of life make the similitude that permits solidarity, but yet, by reason of particular conditions which the separate organism knows how to combine with those of common life, it creates originality."[2] As nutrition for the cell community is possible only in the organism and through the means of it, so individual thinking must be awakened by social thinking and kept alive by it. On the surface, conformity may seem the law of social life; deep below is the province of liberty which is the most necessary condition of moral growth. That which seems conflicting in the relations of Society and Individuality, is only an illustration of Tarde's "contrary repetition." There is no conflict; each makes the other possible and both harmonize.

VII. The Need of Respite.

Many times in the foregoing pages, the necessity for developing a normal personality has appeared. The difficulty of doing it and the fear thereby awakened among many people that the race is losing psychic stamina, have also been noted. It is not amiss to ask what measures will best assist in producing a strong

[1] E. Caird: Philosophy of Kant, p. 83.
[2] Rene Worms: Organisme et Société, p. 232.

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and coherent self. The old days of abjuring social ties, renouncing property, and retiring to the wilderness have passed away. If we could recall them, they would defeat the end in view. Yet the vacation season never fails to discover that, in this habit of retirement, there is a principle which, if rightly applied, is beneficent. Hurry and rush are the creed of the present. A little leisure, a pausing to gain orientation, a little time for the exercise of plain common sense would prove very serviceable for stringing the beads of truth gathered from experience and very significant for the development of individuality.

In the days of old-fashioned family devotions there was such a daily rest. Readings may have been somewhat mechanical at times and prayers may have become stereotyped, but the bare fact that they became a regular means of turning the thoughts out of their ordinary channels for a while; that they induced some degree of self-examination and helped to secure perspective between action and desire; and that, at rhythmic intervals, they recalled and impressed truths that lie deep in human nature, ought to recommend the custom on the ground of utility alone. Religious growth and æsthetic culture enhance its value. And so in any religious service, any means which arrests the eye and turns the thoughts into other channels confers its special benefits. Every fetich, Druid oak, pillar, blood stained lintel and dripping altar; every flagellum, exorcism, and charm; every bead, censer, golden candlestick and crucifix; every reredos and sacred picture; every Lupercal and Saturnalia, feast of saints and fast for sin, has acted as a wholesome check against over activity and as a conserver of the unity of human personality.

Although there are sometimes signs of consternation at periods of silence in social religious services, friends seem more familiar with the laws of thought and appreciate the value of silence when experience will not formulate itself into a message. Catholic teachers also know the value of silence in its relation to seriousness. Their preparation of children for First Communion renders the meaning of the service very impressive. During the days of "Retreat," in addition to sermons, hymns, meditations, stories, poems, and admonitions, a place is provided at home or at church, where the candidates may be alone for a time each day for rest and contemplation. The wonders of the saintly life and of the miracles are pictured. Filial obligations are impressed and disobedience is made forbidding. When it is all over, a child does not forget the cessation from work and study to take up something new. Nor does he forget more readily the symbolic and somewhat mystical features of the service. It serves to establish one permanent point of reference in the life of every child who passes through it.

For years, Saintine observed a silent time and rigidly called himself to account for the manner in which he spent each day, as Winkelmann, after visiting Italy, set aside a portion of each day for reflecting on the joys of Italian life. Something like this has been practiced with varying success in several American schools and colleges. None of these has made rules for the manner of passing the silent period beyond requiring quiet and absence of companionship. Nearly all of the students who were invited to give their opinion of the value of 'silent time' to them, and who reported, pass the hour in a devotional way.

Question blanks for 1,000 persons were sent to Mount Holyoke College, East Northfield Seminary, Mount Hermon School, and the Friends' School at Providence.[1]

Two hundred and seventy-five papers were received in answer. Nearly all were carefully and thoughtfully written, with an evident appreciation of the purpose of the questioner. The age of the writers varied between thirteen years and twenty-five years. Some had observed a silent hour for six months, some for twelve years. In many cases the hour selected was six-thirty in the morning; in the majority of cases, it was nine-thirty in the evening. Some divided the time between morning and evening. The average period spent alone was thirty minutes daily.

The occupation for the hour varied. Prayer, especially for absent friends who are missed, reading the Bible, reading books like Havergal's "Morning Thoughts," "What is Worth While," and "There is no New Sorrow;" learning Bible verses, searching until some passage is found which will make a good watchword for the day; noting the effect of each act of the day on personal well-being; learning some gem from literature, singing some hymn suited to the mood of the hour; thinking and meditating; doing nothing—simply resting and sleeping, generally cover the field.

The writers report having settled questions of religious doubt; whether God aids in one's work or not; how Christ has power over sin; whether Christ was divine; whether there is a 'Baptism of the Holy Spirit;' the problem of eternal punishment, and many personal and ethical questions concerning future plans, life occupation, duty to self and others, questions of right and wrong, categories to be observed in choosing friends, the limits and relations of friendship, how the results of a day

[1] The writer received ready assistance from instructors of the several institutions. He wishes to thank Miss Muir of Mt. Holyoke, Miss Hall and Miss Parmenter of East Northfield, Principal Cutler of Mt. Hermon, and Prof. C. E. Cobb of the Friends' School, as well as all the contributors.

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may be made greater, whether one is a trouble to others or not, and whether it is profitable to keep a silent hour.

Among the benefits derived, the following are mentioned: God seems more real; calmer trust; awakened interest in the Bible which once seemed dull; banishment of anxiety; rising above worry; cure of fretting over examinations; an improved temper; help to begin the day cheerfully when rising tired and worried; keeping the harsh things unsaid; the cure of selfishness; a check upon improper language; overcoming dislike for certain acquaintances; the transformation of a restless nature into a calm purposeful one; broadened range of thought; banishment of physical pain and cure of homesickness. Some especial burdens were lightened. One mentions anxiety over plans for the coming year; anxiety over the illness of friends; the clearing away of a melancholy mood when feeling entirely deserted by friends; and one, whose father died of melancholia and who feared becoming like him, reports that every symptom and every trace of fear, have been taken away.

Others have left castle building for earnest thought, followed by action; given up dwelling on sins and failures; exchanged worrying about the future for enjoying the present; taken up systematic courses of reading; gained clearer standards of right and wrong, and learned to deliberate upon the facts of a case before pronouncing judgment.

In response to a question as to the class of people most likely to be benefited by the silent hour, the replies were: if any more than others, the melancholy, those who worry, those with most difficulties, those troubled with indigestion; students, parents, and teachers; lazy people, busy people, the work-a-day world; those whose lives are overcrowded; all who are much in contact with men; those who have most to do; people who are tempted; Christians; weak ones; those "who know it is required by rule but can't see any good in it."

All believe that it is a good thing for schools and colleges, but that it should not be compulsory, at least as a devotional hour. A few dreaded to give the time when driven with work, when they could not "get into the spirit of it," when "fatigued and too indifferent to think," and when "physical and spiritual vitality were at too low an ebb."

A few can see how, if compulsory, it might injure one who is careless and irreverent, one who is restless and evil-minded, or one gloomy and morbid by nature; and one fears that "such as had read the Bible thoroughly, might 'pick it to pieces'" if given a quiet hour for thought.

One of the most noteworthy features of the records is that the writers have experienced no especially exalted states of feeling. This indicates a sane and wholesome view of the mat-

ter, and a deep natural growth without jerkiness or reduplication. These young people have not, like Dr. Adler, formulated a principle that "the moral man must consider his words and actions," that "he must inhibit, and, therefore, he must have intervals of silence,"[1] but they have been building it into personality, which is more important to each one concerned.

Perfect health demands a perfect metabolism. Without doubt the function of rest in securing such a condition is far greater than the slight attention given to securing rest would indicate. A daily period of quiet thought for every motor-minded person, and of quiet rest for every person who is mentally or physically overworked, would serve to make vacations tolerable, to cultivate an acquaintance with self, and to give a stronger tone to society. Such a period need not necessarily be devoted to prayer and praise alone. In the turning of the thoughts into any wholesome channel the advantage is derived, but whenever an hour comes in which any person finds his "physical and spiritual vitality too low" for meditation, quiet sleep is the incense of devotion.

For a different temperament, one which is extremely subjective, and hates affairs, which, like that of Raphael,[2] Rene and Obermann,[3] always preys upon itself, dreams without acting, desires to be of service but never can will to serve, a quiet hour might prove baneful. Such a nature needs the stimulus of constant contact with men, a brad instead of quiet and a cushion. To develop personal strength and balance is the end for which both rest and effort are sought. In general, unless one is engaged upon some special theme of research, brief periods of partial retirement, might profitably be alternated with longer periods of contact with men and society. Sighele,[4] quoting Tarde, says that Solitude can be fruitful in no other way.

VIII. Specialization.

A method of life like that suggested in the preceding chapter, mingling abundant activity with due reflection, represents the initial form of specialization. If made broader in character, it could not fail to lead to the discovery of certain interests, deeper and more permanent than others, in the nature of each individual. The development of these fundamental lines would endow the majority of men with greater personal power and would prove a propadeutic to more earnest and devoted investigation on the part of a few.

The wide difference between one's power for seeing and that

[1] Felix Adler: International Journal of Ethics, Vol. VIII, p. 358.
[2] See Works of Lamartine.
[3] Chapter II.
[4] Psychologie de Sectes, p. 61.

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for doing, makes such a method necessary if one wishes to make the most of life instead of existing to be amused. A man measures his visual field in square miles. That field may be regarded as a composite thing made up of many interrelated areas. He spans his physical ability to work these areas by paces or by the odds between his chin and his finger tips. And the total effect of the dynamic expenditure of a lifetime, depends on whether the principles of interrelation in the field of work are discovered and made the law governing the application of force, or whether they are permitted to lie hidden while force is applied at random. In the recognition of this truth, we have the reason why we count the contributors of special ideas by tens, while we summarize our census of humanity in hundreds of millions.

One of the needs of the century is a kind of wisdom which the odds and ends of its experience could yield if they were rightly formulated. But the gold of truth lies deep under the waste of error, and an elimination of the useless, a conservation of the desirable, and a constant reconstruction of current opinions are necessary to right social and practical ideals. Gossip must not masquerade as conversation; frantic efforts to kill time must not pass for recreation; and the belief that mere social assemblies and half-hour cram classes will produce wrinkles that cannot be distinguished from those on the brow of wisdom, must be shown to be a myth. Deeper views are our need but they can be attained only by working more intensely and more intensively. One who undertakes to do this will not be a pioneer. Pliny employed a reader while he ate his meals. Alexander broke the tension of his campaigns and gained new energy for prosecuting them by studying a favorite theme on the eve of the battle of Pharsalus. Brindley, the engineer, went to bed to work out his special problems and remained there until they were solved. Turner used to sit for days on crags and hillsides. Sometimes he dreamed; sometimes threw pebbles into the lakes below. Rivals ridiculed him for wasting time but his brush surpassed them all. Emerson says of Archimedes and Newton, "If these had been good fellows, fond of clubs and port, we should have had no 'Principia' and no 'Theory of Space.'"[1]

What specialization means in a practical way cannot be estimated, but faint suggestions of its meaning can be gathered from the growth of any science, art, industry, or profession. The development of physiological medicine will afford a striking illustration, although only a few steps can be traced here. Ignorance, superstition, and theology were long the chief foes

[1] Society and Solitude, p. 12.

to its advancement as a science. Bourke's volume on the use of ordure in curing disease is a sufficient commentary on the naivete of early folk-thought and John Wesley's 'Primitive Medicine,'[1] shows only a refinement of the primitive simplicity.

It was 1315 when Mendini began to lecture on anatomy and Arabian Therapeutics at Bologna. For many years, only clergymen were allowed to give instruction in medicine, and up to the Fifteenth Century, all the anatomical demonstration that entered into a full preparatory course was made "by a barber's assistant with a razor."[2] After the awakening came, discoveries multiplied. Laennec with the stethoscope gave an impulse to physical diagnosis; Bright, Hope, and Bonillard, added something to existing knowledge of heart affections; Hunter, Bischat, and Müller gained distinction in anatomy and physiology. Under the influence of Bacon, empirical study was reanimated. The researches and comparative studies of Buffon, Linnæus, and Cuvier contributed especially to this field, although leading to provinces far wider. The work of Broca, Ferrier, Hughlings-Jackson, Flechsig, Kraepelin, and Nissl; the patient labors of Virchow, Davaine, Bouchard, and Pasteur on the germ theory of disease and immunity through inoculation; the advanced researches of Behring and Roux, Kitasato, and Yersin have not only built a wonderful science, but have opened new realms of psychic activity, and given men additional days in which to employ it.

The influence of other sciences cannot be omitted. The chemical mile-posts set up by Dalton, Wollaston, Berzelius, Misterlich, and Dumas; the prophetic discoveries of Herschel and Fraunhofer; the labors of Newton, Fresnel, Malus, and Thomas Young, which paved the way for the investigations of Brewster, Arago, Helmholz, and Roentgen concerning the nature and uses of light, will never cease to be memorable.

Starting with little education, but with great talent for business and a peculiar power of prophetic vision, a few men who have amassed fortunes, have so realized the need of the world as to make large bequests for the furtherance of special research, and the results which are being accomplished reveal more and more the wisdom and the true humanity of such benefactors. The example of such is destined to be followed more and more, though perhaps in the less inclusive way of building laboratories and experiment stations for the solution of limited or very definite problems. Of course, the mass of humanity cannot be limited specialists but in tracing the stages

[1] Revised by W. M. Cornell, M. D.; Twenty-fourth Edition, Boston, 1858.

[2] Horsley: The Brain and Spinal Cord, p. 15.

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of the growth of an idea, the spirit of the conditions which attended its unfolding, revives in the imagination of every one who is earnest enough for intensive study, and while it gives an added sense of personality, it convinces of sonship in the world.

IX. Summary and Educational Suggestions.

Each of the foregoing chapters closed with its own summary. In order that the unity of all may appear more complete, their spirit is formulated in the following inferences:—

1. Social life is the normal condition of human development and the normal sphere of human activity;

a. Because such is the evidence of biology;

b. Because it is the testimony of solitary characters;

c. Because it is supported by the pathetic efforts of men in solitary confinement to obtain companionship;

d. Because the 'Feral' cases show that psychic development is impossible out of society, and that neither language nor companionability are possible to any considerable degree, where human beings are deprived of natural associations until the age of nine.

2. Far from conflicting with the growth of individuality, social life is the only condition under the favoring influences of which it can be evolved.

3. The popular opinion that social life destroys individuality arises from a low conception of individuality and a lack of realization of what society implies.

4. The cause of complete isolation is, in general, an egoism so extreme that it amounts to self-worship; it may be due either to the fault or the misfortune of the solitaire.

5. One of the problems of the present is to realize a higher egoism which shall find its ideal in reciprocality of social relations.

6. Although complete solitude is unfavorable to men, respite, vacations, short seasons of retirement, are necessary in all lines of life.

7. In the "Retreat," in the "Silent Time," of certain educational institutions, and in the "Quiet Hour" of the Christian Endeavor Society there is a principle which tends toward the orientation of the self, personal strength, and general balance, and which finds its fullest play in specialization.

There are some things that it is particularly important for educators to remember. Among these—

1. That a solitary child is an abnormal being in danger of suffering from arrest of normal development. Especial care must be taken to win the confidence of such a one and to remove the conditions tending in the unfavorable direction.

2. That the tendency toward solitude at adolescence indicates not fullness but want. Plenty of work, sufficient freedom, time for rest, opportunity for hearing and seeing the widest possible range of beautiful things, some intensive work in favorite lines, and, above all, the genuine sympathy and wise companionship of some friend with broad experience, will serve both to banish loneliness and to awaken earnest purpose.

3. In Reformatories for youth, isolation for misbehavior is opposed to the purpose of such institutions. Life saturates the outcast with loneliness. His treatment at the hands of society should be such as to socialize him. The danger in isolating him arises less from his tendency to practice evil habits than from his danger of growing more sullen and of developing intenser hostility toward society.

4. That popular judgment errs in asserting that mass instruction necessarily kills individuality in the pupil. The evil, when it appears, can be traced to a worship of mechanical method, or to the equally mechanical exactions of Systems, Boards, and Superintendents.

5. That as soon as the sub-conscious life out of which all spontaneity and enthusiasm arise, becomes calloused, instruction is dead; therefore, no one needs contact with warm social life and new ideals more than the teacher. At present, however, an insufficient force of teachers and an excessive amount of profitless detail debars him both from special study and from society.

6. That nature study and æsthetic culture ought to be more strongly emphasized in rural schools.

7. That the dignity and importance of every form of labor ought to be impressed more fully in all schools.

8. That the pupil ought to be taught to make friends with himself and to appreciate a true sociability.

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HEALTH INSPECTION IN THE SCHOOLS

By Wm. H. Burnham.

Several facts urge the problem of health inspection in the schools for immediate solution. First, both statistics and observation show the great prevalence of contagious diseases among school-children, and the almost unrivalled opportunity offered by the school for detecting and checking such diseases. Second, many investigations since the classic studies by Hertel in the schools of Denmark, and by Key in Sweden, have shown the large percentage of school-children suffering from chronic diseases of various kinds.[1] How far the home is responsible for these diseases and to what extent they are aggravated by the conditions of school life is unessential. The fact remains, be the cause what it may, that a very large percentage of the children in the schools are chronically ill. Third, the studies of the sanitary condition of schoolhouses made in many cities in Europe, and in this country in Boston, Philadelphia, Buffalo, and several other cities, show the existence of some schoolhouses that defy almost all the well-accepted principles of hygiene, and whose use for the purposes of instruction is a disgrace to civilized communities; and they indicate that however good the best schoolhouses in this country may be, a large part of them are unfit for use because of their unsanitary condition. These investigations have been made usually under the direction of competent experts. Among the evils found are insufficient light, lack of ventilation, air vitiated by odors from out-houses, old style vaults, gases from the heating apparatus, etc., wraps and umbrellas kept in the schoolrooms, old style furniture too large or too small for the children, seats placed at a plus distance, the arrangement such that the light comes from the right, practically no attempt at cleaning the rooms, dry sweeping, the use of a feather duster to stir up the dust, dirty text-books, etc. These facts can be verified by observation. Similar evils exists in every large city. The need for a competent system of health inspection is emphasized still further by the fact that in the modern reconstruction of school instruc-

[1] For statistics see Hertel, Overpressure in the High Schools of Denmark, London, 1885; Burgerstein, Axel Key's Schulhygienische Untersuchungen, Hamburg, 1889; and the article by the writer on School Diseases, in the Universal Cyclopædia, Vol. X.

tion special regard for hygiene is demanded. It is now seen that every educational principle and method, the choice and sequence of studies in the curriculum, and all the details concerning text-books, apparatus, and the like, must be studied from the point of view of hygiene, and that the prime principle to be considered in all educational matters is that of regard for normal healthy development of the individual child.

Not only do experts in hygiene and educators now demand a greater regard for health in the schools, but the community is dissatisfied with the present condition of the schools, and one great cause of this dissatisfaction is the knowledge that the conditions of school-life are often injurious to health. Citizens, as a rule, have little knowledge of the actual conditions of the school, and frequently still less appreciation of the demands of school hygiene; nevertheless, whenever the facts are forced upon their attention, whether by wholesale investigation or by the reports of their own children, they are aroused, and dissatisfaction with the schools is frequently the result. Intelligent citizens object to a law that requires children to attend school when so often the conditions are such that a child cannot stay in the schoolroom without grave danger to health.

The recent discussions of health inspection have centered around the plan of special systematic medical inspection by regular physicians. The interest in the question is indicated by the number of articles that have recently appeared upon the subject. In Germany especially, the matter is repeatedly brought to public attention by discussions in journals devoted to hygiene. In the *Zeitschrift für Schulgesundheitspflege* alone, during the last two years (1898, 1899), a dozen articles and reports have appeared upon the subject besides numerous minor contributions. The merits of the plan can be best discussed after a brief survey of the history and present status of the subject.

Experiments with Medical Inspection.

According to Dr. Cohn,[1] the Silesian Medical Society was the first in the world to consider the subject of school hygiene. Thirty-three years ago he made his classic report upon myopia among ten thousand school-children in Breslau; as a result a commission composed of physicians and teachers was chosen by this society. This commission worked for the improvement of schoolrooms, but did not advocate the appointment of school physicians. Medical inspection was advocated, however, by Falk in 1868, and Virchow in 1869, and by Ellinger in 1877;

[1] Cohn, Dr. Hermann: "Die Schularztfrage in Breslau," Zeitschrift für Schulgesundheitspflege, 1898, No. 11, pp. 579-596.

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by the last mentioned physician the term school physician was invented. Other physicians and commissions discussed the subject, and especially noteworthy was the paper on the necessity of school physicians by Dr. Cohn, published in 1886, and the address given by him before the International Congress of Hygiene, in Geneva, in 1883. At this Congress Dr. Cohn presented a series of eighteen theses which represent the fundamental features of the plan for school physicians to-day. Among these are the following:

A thorough municipal hygienic inspection of all the public and private school buildings now in use is absolutely necessary. The school may be injurious to health, hence every school should have a school physician. The school physician should have a seat and vote in the school board. Never more than a thousand pupils should be allotted to one physician. At the beginning of each semester all the children should be measured, and seated according to their height. The school physician must test the eyes of each pupil annually. He has the right to visit every class, and at least once a month he must visit all class rooms during the instruction. Every contagious disease must be reported to him and he must not permit the child recovering from such disease to return to school until he is convinced that all danger is over and that the books and clothes of the child have been thoroughly disinfected.

Medical supervision has been advocated for many years in other countries; and it has been tried in one form or another in France, Belgium, Austria, Hungary, England, Sweden, Norway, Switzerland in many cantons, Russia, Japan, Germany, especially in Saxony, and in the cities of Leipzig, Karlsruhe, Dresden, Wiesbaden, Darmstadt, Berlin, etc.; and in Boston, New York, Chicago, Philadelphia, and some other American cities, and to some extent in several other countries.[1]

The duties of a school physician, as they are prescribed by law in some of the European countries, illustrate the scope of the plan. Take for example the law in Hungary. The school physician is required to investigate the school buildings, and surroundings, the floors, doors, windows, stairways, corridors, playgrounds and the like. He tests further the air, the drinking-water, has charge of disinfecting the school when necessary, and so on. When the children enter the school, he tests their health,—giving a physical examination, noting the condition of the heart and lungs, any tendency to spinal curvature, any symptoms of contagious diseases, nerve signs,

[1] For brief historical surveys of the subject see Mangenot: L'inspection hygiénique et médicale des écoles, Paris, 1887, pp. 64; and Schubert: "Zur Schularztfrage," Z. f. Schulges., No. 6, pp. 305–317, and No. 7, pp. 379–391.

etc. He tests the eyes and ears, and examines the teeth, hair, skin, etc. Further, when the physician has reason to suspect that the pupils live in unhealthy homes, or are not properly fed, he causes the director of the school to look after the parents or guardians in this respect. He has supervision of the plays and sports of the pupils, baths and swimming-tanks, and so on; and he reports each year to the director in regard to the hygienic condition of the pupils.

The plan of medical inspection in France deserves special notice.[1] Since the law of 1893 in regard to medical treatment of the poor, all the public educational institutions of France have had medical inspection. The private schools, although provided for in the law of 1886, have not been subject to such inspection. Mangenot[1] writing in 1896, says that both in Paris, and in the provinces, there is no medical inspection of private schools. In Paris provision is made for systematic inpection of the schools under the direction of a general school inspector, and annually, at the close of the school year, a comprehensive report of the health conditions in the city of Paris is presented to the prefect. Some of the articles of the law in regard to medical inspection are as follows:

Article 2. The public schools of the city of Paris are, for the purpose of medical supervision, to be divided into groups of from 15 to 20 schoolrooms. Any maternal school is to be reckoned as two rooms. A redistricting takes place every three years. The prefect performs this duty. Newly opened schools are assigned to the nearest "medical group."

Article 3. The salary of a school physician is 800 francs ($160) per annum.

Article 4. The physicians are nominated by the mayors and appointed by the prefect of the department.

Article 5. The tenure of office of these physicians is for three years.

Article 10. The school physician is obliged to visit every public and maternal school twice a month, but he must also appear there when the mayor or prefect may see fit to order a visit.

Article 13. At least once a month a thorough examination of each child is to be made with reference to eyes, ears, and teeth. If the physician finds a tendency to disease, or if the general state of health of the child needs special attention on the part of the parents, these must be notified by the physician's certificate, which is to be handed to the child.[2]

In Switzerland the matter of health inspection is left to the

[1] See Z. f. Schulges., 1896, pp. 643–646.

[2] Report of the Commissioner of Education, 1897–1898, Vol. II, p. 1510.

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different cantons. The scope of the work done by the physicians in the cities having the best inspection may be judged from the duties of the school physician in Basel. They include the following functions: He devotes the greater part of his time to visiting the schools. He notices the heating, lighting, and ventilation, the position of the pupils, and tests their eyesight and hearing. These tests often give occasion for home visits. He makes reports of his observations on the condition of schoolhouses to the officials, recommending changes. He must concern himself with the remission of subjects on account of illness; and must see that parents observe the regulations in regard to infectious diseases. Further, on him depend largely the choice of pupils to receive free food, of those to be placed in the special classes for backward children, and of those to be sent on vacations. For example, one year 19 boys and 25 girls were chosen by the teachers for the dullards classes. Of these the school physician picked out 16 boys and 23 girls. As a concrete example of work that may fall to his lot, the physician in Basel, when the introduction of school baths was under consideration, was sent to Karlsruhe to test the bathing arrangements there and to report thereon.[1]

The Medical Society of the Canton of Zurich recently expressed the wish that the following paragraph be inserted in the new school law for the Canton: "Periodical investigations should be made by physicians of the health condition of the school children and the sanitary conditions of the schools." The duties of the physicians, according to the wish of the medical society, would be as follows: First, all the children on entering school, even in the higher classes, should be examined in the course of the first school year; second, the investigations should cover at least the following points: height, weight, eyes, acuity of vision, ears, acuteness of hearing, mouth, teeth, nose, breathing and disturbances of speech, stammering and stuttering, whether vaccinated, or revaccinated, whether they have had the smallpox, general health condition, physical and mental; third, the investigations should take place periodically, and at least at the beginning, in the middle and at the end of the all-day school, and, wherever possible, should be extended to the secondary schools; the teachers should be specially advised to make still more frequent tests of sight and hearing; fourth, the physician further should inform himself several times in the year in regard to the sanitary conditions of the schoolhouse and its equipment; fifth, every child should have a health card attached to his diploma; sixth, furthermore, a report of the results of the tests in regard to the physical con-

[1] Z. f. Schulges., 1892, p. 273.

dition of the children is to be prepared by classes and years by the physician and the teacher in the card or check-book form, and this is to be sent after the completion of all the tests with a short comprehensive report with regard to the health conditions of the school in general to the school board; seventh, in case of emergency, specially in case of infectious diseases among the children, the physician shall immediately report to the board; eighth, the report is brought first to the knowledge of the parish school directors, and then to the district school directors, and through them submitted to the district physician, who finally gives the necessary instructions to the local board of health; ninth, the assignment of these investigations to the physicians is an affair of the school authorities; tenth, the physicians shall be paid for their work by the State.[1]

In Germany, in the different provinces and cities that have medical inspection the regulations vary. As the plan adopted at Wiesbaden is taken as the model in Germany, and recommended by the Cultus-minister for general adoption, it is worth while to cite in detail the regulations of this city concerning the duties and position of the school physician.

Circular A.

Regulation for the School Physicians in the City Elementary and Middle Schools, Wiesbaden.

The duty of the school physicians is to have oversight of the health condition of the pupils allotted to them, and to co-operate in the medical inspection of the premises and equipment of the school, and accordingly they are required to carry out all the regulations of the authorities in regard to this duty.

The following are the special regulations: I. The school physicians shall investigate carefully the physical condition and health of the pupils who newly enter the school, in order to determine whether they need permanent medical supervision, or special consideration in the instruction of the school; (for example, dismissal from instruction in certain subjects, as gymnastics, singing, or limitation of their share of the instruction, allotment of especial seat on account of defects of eyesight or hearing.) A health card is to be filled out for every child tested, and this is to be kept with him during his whole school period. If the child appears to be in constant need of medical supervision, the words "medical control" are to be written on one side of this card, and report is to be made at the initial investigation of each child under the categories of good, medium, or bad. The discrimination *good* is only for completely faultless health condition; *bad* only for pronounced tendency to diseases or marked illness. The other rubrics are to be filled out only in case of need, indeed in case of illness, when it becomes noticeable at the initial investigation or in course of the later school year. The weighing and measuring is to be undertaken by the class teachers, and recorded every half year on the cards, approximately in half cm. and quarter kg. The chest circumference is

[1] See Z. f. Schulges, No. 4, 1899, pp. 221–2; also No. 1, 1900, p. 56.

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measured by the physicians, but only in case of children where disease of the lungs is suspected.

II. Every fourteen days, or oftener in case of contagious diseases, on a day previously decided upon by consultation with the school director (for example, the first and third Thursdays of the month), the school physician holds consultation hours in the school in the forenoon from ten until twelve o'clock. For this purpose, when it is possible, a special room is to be placed at the disposal of the physician. If the physician desires to visit the school on some other day than the one appointed, he must notify the school director of this at least three days before.

In case of unforeseen hindrances, the following Wednesday should be the visiting day. The first half of the consultation hour should serve the purpose of a visit of from ten to fifteen minutes to five class rooms during the instruction. Every class room, when possible, should be visited twice each half year. At these visits all the children are to be subjected to an external inspection; and if, in special cases demanding immediate consideration, information is desired by the teacher, this information is to be given him.

If individual children appear to need a more careful investigation, this is to be given afterwards in the physician's consultation room. At the same time these visits will serve for inspection of the school localities and their arrangements, and for the control of the ventilation, heating, physical position of the pupils, etc.

For pedagogical reasons, the physician will be expected to avoid in a tactful manner, every humiliation or exposure of the teacher before his class. The second half of the consultation hour is to be devoted to any more careful investigations that may be demanded.

At this time, in pressing cases, the children also are to be presented to the physician from the rooms not visited that day, especially where there is suspicion of contagious disease.

The health cards of all the children having instruction are to be placed before the physician or sent to him. . . . . The class teacher shall be present at the time of the medical inspection. The whole general arrangement is under the charge of the school director. The medical treatment of the pupils who are ill, is not a matter for the school physician; such children are rather to be directed to their home physician or to a physician for the poor or a special physician or to some hospital. In case of the latter children this can be done orally. In case such warning is without effect, appropriate printed instructions are to be filled out for them, as well as for the younger children. This should be done only in case of serious disease, where the interest of the children or the school demands it. In filling out the proper formula, every harsh expression or the like is to be avoided. It shall be the duty of the school director to send warning or advice to the parents.

III. The health cards are to be preserved in permanent books in the different class rooms, and to be kept in the school as long as they are not demanded by the school inspector.

The cards marked "medical control" are to be placed before the physician at each visit to the room. If the child passes from one school to another, then his health card is to be sent to him through the school director.

IV. At the request of the school director, the school physicians shall investigate individual cases in their homes, in order to determine, in case the parents bring in other satisfactory medical certificate, whether absence from school is excusable.

V. The school physicians shall inspect the school localities, and their equipment, at least once in summer, and once in winter. The observations made at these times as well as at the other visits in regard

to the character of the objects inspected, as well as the condition of cleanliness, ventilation, heating and lighting, and the proposals or recommendations resulting from these observations, are to be entered by the physicians in a book kept for this purpose by the school director.

VI. The school physicians shall not have the right to give independent instructions to the school directors and teachers, to the janitors, and other school servants. If they believe that the recommendations made by them in respect to the treatment of the children, or the hygiene of the premises, is not given sufficient consideration, then they shall present their complaints with reference to this through their representative in the school hygiene commission. In pressing cases, they can make besides, statements before the city school inspector, or before the Royal Kreisphysikus.

VII. To obtain a hearing of this kind for the purpose in question, the representative of the school physicians in the school hygiene commission shall collect his colleagues for general discussion, to which the Royal Kreisphysikus shall be especially invited, if the question concerns the sanitary condition of the premises. In winter the school physicians shall give short lectures on the most important questions of school hygiene before the teachers' meetings.

VIII. The school physicians before the 15th of May for each year shall present a written report of their work to the senior school physician. The latter shall place the separate reports with a short comprehensive general report before the magistrate by the first of June. In preparing the report the following seven points are to be considered:

(1.) Tabulated statistical tables of the results of the initial examinations.

(2.) The number of the consultation hours held, and the official visits to the class rooms.

(3.) The number and kind of the more important cases of diseases which have been investigated in the consultation hours.

(4.) Any special medical dispensations made (limitation of the hours of instruction of gymnastics excepted).

(5.) The number of written communications sent to parents.

(6.) The number of school children under special medical supervision or control.

(7.) A summary of the notes in regard to the premises that have been entered in the hygiene book.

IX. If the school physician, except during vacation, leaves the city for longer than one week, then he shall provide the authorities with a capable substitute free of cost.

X. The school physicians shall receive for their work a yearly honorarium divided into quarterly rates, from the city treasury.

XI. In case of proof of neglect of duty, the magistrate can dismiss a school physician at any time. In other cases, both on the part of the school physician and the magistrate, the office can be vacated only after notice of three months.

XII. The magistrate reserves the right to change or enlarge these regulations.[1]

(Wiesbaden, May 30, 1897.)

The number of pupils allotted to a single physician in Berlin (5,400) is altogether too large. In Dresden it is from 4,000 to 5,000; in Leipzig 3,000 to 4,000; in Nuremberg over 3,000; but in Wiesbaden, Darmstadt and Offenbach a. M. only from 1,000 to 1,900 are allotted to one physician. With the larger

[1] For a recent change see Z.f. Schulzes., 1900, No. 1, p. 59.

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number, the function of the school physician is likely to be largely a decorative one, and for the work required the number in Wiesbaden is the maximum.

In this country where medical inspection has been tried the aim has been chiefly to combat contagious diseases. The further functions of health inspection which are included in the duties of the school physicians in many European cities have not been attempted; but so far as work of this kind has been done, it has been chiefly by means of special investigations by teachers, superintendents, physicians, or others interested in some special subject. In this way many measurements of school children have been made by Bowditch, Porter, Boaz, and others; and tests of the senses or the like have been made by Allport and others.[2]

In 1894 medical inspectors were appointed by the Board of Health in Boston, and the duty of the inspector is as follows:

To visit the schools of his district daily at the opening of the session, examine all pupils whom the teachers have found ill or complaining, to give teachers advice concerning them, make a record of cases in a book kept by the principal, and forward daily and weekly reports to his chief. In case a child is found suffering from a contagious disease, a courteous note is sent to the family physician, if he is known, or a card stating the cause of exclusion. The Board of Health then takes the matter in hand; and the inspector as the agent of this board visits at the homes cases of diphtheria and scarlet fever. A similar plan has been adopted in Philadelphia, New York, Chicago, and something has been done in the way of medical inspection in several other cities[3] and towns.

In some private schools medical inspectors have been employed and their functions extended considerably beyond that of merely noting and excluding cases of contagious diseases. For example, such a plan is adopted in the Workingmen's School in New York City. The Director, Mr. Reigart, writes as follows in regard to the plan and results:

"The information in regard to the general health and heredity is kept in a separate medical record, and in this book are also entered the results of examination of sight, hearing, and general physical condition, besides the exact measurements of height, weight, arms, chest, and lung capacity. In case of defective sight or hearing a letter is sent to the parents advising

[1] Z. f. Schulges., 1899, No. 1, p. 40–42.

[2] See Louis N. Wilson's Bibliography of Child Study, Worcester, 1898, 1899.

[3] Besides the special Health Reports see, for a convenient résumé, an article by Miss Dora Keen, Medical Inspection of Schools, Phila. Med. Journal, 1898.

attention by a specialist; and in case of deficiency in general health, general or specific advice is given. Of course this correspondence must depend very much upon the class of children examined. Some families have their own physicians, others are advised as to the use of a dispensary, etc. In some cases the school physician makes special visits.

"The children are examined very soon after entrance as to sight and hearing; the measurements are then taken more leisurely. I have also had the school physician observe the children in the class rooms, noting their appearance and reactions under school conditions, rather than the examination in a special office; though a special examination is given whenever a teacher or physician thinks it advisable. Perhaps that part of the physician's work which is of most immediate value is his inspection for contagious diseases. The doctor visits the school three times a week; suspicious cases are referred to him, as are also applications for re-entrance after a case of contagious disease."

At the William Penn Charter School in Philadelphia,[1] "a careful examination of the whole school is made immediately after the opening in the autumn, and again just before the summer holidays. These examinations consist of tests of the strength of various parts of the body and such measurements as indicate the extent of physical growth. The results are all recorded in the Report Books, and in due course are submitted to the inspection of the parents. If a comparison of the two latest reports shows the boy to be either standing still physically or retrograding, his case demands prompt attention; if, on the other hand, he is found to be advancing, it can be accepted as certain that his school work agrees with him. These examinations include tests of the eye-sight and hearing by skilled specialists, the purpose being to furnish parents with timely notice of any defect which might otherwise be overlooked, and to obtain data for the proper seating of the boys in the schoolroom."

Results.

The results of medical inspection in the public schools in this country so far as tried, have been in a large measure satisfactory. While much remains to be accomplished, the success of the plans adopted for the checking of contagious diseases has been noteworthy. Convenient résumés of work accomplished in the larger cities have been given in medical journals, and in the Report of the Commissioner of Education, for 1897-'98. The report for Boston[2] gives typical results. "For the

[1] The William Penn Charter School, Philadelphia, 1900, pp. 27-28.
[2] See Mass. State Board of Health Report, 1895, p. 756. Cited in Report of Com. of Ed., *loc. cit.*, pp. 1489-1491.

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fourteen months ending December 31, 1895, 16,790 pupils were examined, 10,737 of whom were found to be ill, 6,053 were found not to be ill, and 2,041 of these were too ill to remain in school for the day." "Seventy-seven cases of diphtheria, 28 cases of scarlet fever, 116 of measles, 28 of chicken pox, 69 of pediculosis, 47 of scabbies, 47 of mumps, 33 of whooping cough, and 8 of congenital syphilis were found in children sitting in their seats, spreading these diseases to other children. The remaining 10,372 sick children were suffering from a large variety of other diseases."

The Report for 1896 states that "The medical inspection of schools has been continued during the past year, with the same encouraging and satisfactory results as during the previous fourteen months." Since that time the work has been continued and similar results reported.

As regards the actual work accomplished by school physicians in Europe, who have more extended functions, rather a small amount of data is at hand, but some very interesting reports have been made. The following are a few examples:

The report of the city school hygiene commission in Wiesbaden for 1898 and 1899 in regard to the work of the school physicians, shows that the new plan is succeeding well in that city. Some of the details of the senior physician's report may be cited as illustrative.

According to the last report,[1] the superficial examination of the newly entering children was made in the first three days, but without special result. In the course of the first three or four weeks more thorough examination of thirteen hundred children was made, and only fifteen were exempted from this by the presentation of a certificate from the home physician. The result of this examination showed in the middle schools as regards general health, 44.9 per cent. good, 54.8 per cent. medium, 3 per cent. bad. In the people's schools, on the other hand, 34.4 good, 58.8 medium, 6.8 per cent. bad. Among about three hundred children in the middle schools, less than eleven per cent. were found suffering from diseases, not reckoning defects of the teeth; and among about 970 children in the people's schools, 51 per cent. In eight cases contagious diseases were detected, and the children immediately excluded from the school. Three cases of scarlatina, one of measles, and four of whooping cough. Drastic measures adopted in regard to pediculosis, namely, compulsory cleaning at the city hospital in three cases, had a good effect; for the number of cases of children suffering from parasites decreased from 194 in the previous year to 125. In the course of the school year in some one

[1] Zeitschrift für Schulges., 1899, No. 12, pp. 728–733.

hundred cases written communications had been sent to the parents in regard to the diseases of their children, and in 65 cases, as a direct result, pupils had been supplied with spectacles, had received medical treatment, etc. In some 80 cases special care in instruction, gymnastics, etc., had been arranged for at the advice of the physician. Further, 36 teachers from the different schools had received a short course of instruction in regard to emergencies, etc.; and in common sittings of the school physicians with the school hygiene commission a number of questions relating to questions of hygiene had been discussed.

The yearly report of the activity of the school physicians in Darmstadt for the year 1898–9 gives the following statistics:[1] Among 5,502 children tested the general health in 26.3 per cent. of the cases is reported as good; in 68.62 per cent. of the cases it is reported as fair, and only in 280 cases is the report bad, namely in 5.08 per cent. of all. 2,308 cases of disease were observed, most frequently anæmia, about 10.5 per cent. of the girls and 2.5 per cent. of the boys; then scrofula, rickets, diseases of the bones, diseases of the mouth, nose and throat. About 80 per cent. of the children tested had bad teeth; parasites were found in about 200 cases. These children were placed under constant supervision and in 5.3 per cent. of the cases special care was required during instruction. 507 written communications to the parents were made. Along with the supervision of the health condition of the children, attention was given to the hygiene of instruction, and anything amiss in this respect was pointed out. The regulations could not be completely carried out, especially was this true in regard to examining the children twice each semester; one investigation of all the children a semester was scarcely possible.

The experiments with medical inspection have not been altogether successful. The reasons are four-fold. First, in many cases the number of children (four to six thousand) allotted to one physician has been altogether too large; second, in many cases the physicians appointed have not had proper training, being ignorant of school hygiene; third, the teachers have not always co-operated properly; fourth, the parents in many cases have not only failed to appreciate the work of the school physician, but have put obstacles in his way.

Contagious Diseases and the School.

The prevalence of contagious diseases is dependent to a considerable degree on the season of the year. Dr. Berger has studied the influence of the time of year on certain contagious

[1] See Z. f. Schulges., 1899, No. 11, pp. 637–650.

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diseases among school children, and made an investigation of 347 cases of diphtheria, among these 176 school children; 128 cases of scarlet fever, of these 70 school children; 153 cases of measles, of these 86 school children; and 23 cases of typhoid fever, among these 3 school children.[1] He finds that diphtheria among school children as well as among others, is most frequent in the winter months, rarest in the summer months, June and July showing the fewest cases, January and February the most. Scarlet fever too, is most common in the winter, and the months from March to July show the smallest number of cases. Measles occurs more frequently in the winter months than in the summer months, but typhoid fever occurs most frequently in August, and is most rare from November to February. In general, the fewest cases of contagious diseases occur in June, and the most in December and January. In determining this ratio, the conditions of the weather play an important role, but he does not deny that there are other factors: the conditions of school life during the colder weather, clothing, etc.

That the school is an important factor in spreading contagious diseases has been shown not only by everyday experience, but also by the results of special investigations. Koeroesi,[2] for example, found during the three-quarters of the year when the school was in session, 4,400 cases of measles per month, but for the vacation month of August only 780 cases; for the month of September, the first of the school year, only 639; and only 1,695 for October. Taking the four quarters of the year, there were for the three months of vacation only 3,054 cases, while for the first quarter of the year there were 11,865; for the second, 13,258; for the third. 13,147. In part this might be accounted for by the influence of the seasons, but further proof of the causal relation between school attendance and the spread of measles was found from the fact that when the time of vacation was changed, as occurred one year on account of the cholera, the period of minimal number of cases, was altered correspondingly. Scarlet fever, diphtheria, and whooping cough especially are spread by the school.

The investigations made in London by Murphy, for the years 1892-'93, show this greater prevalence of contagious diseases during the school period in a very striking manner, especially his curves for scarlet fever and diphtheria for the ages from three to thirteen. These show a deep depression of the curve at the time of the summer vacation. Dr. Schaefer has compiled statistics in regard to contagious diseases from the medical reports of Schleswig-Holstein and Hamburg for measles, scarlet

[1] Zeitschrift für Schulges., 1898, No. 1, p. 26.

[2] See Kotelmann, Ueber Schulgesundheitspflege, München, 1895, Baumeister's Handbuch, Zweiter. Bd., 2. Abtg., p. 383.

fever, diphtheria, and whooping cough for some sixteen years. His results are based upon 230,000 and 150,000 cases respectively, hence the effect of chance seems to be ruled out and distinct influences are apparently indicated. In his result the curve for scarlet fever for Hamburg shows a saddle-form sinking of the curve at the time of the summer vacation in exactly the same manner as in Murphy's diagram; the same is true of the curve for diphtheria. The curve for measles had a somewhat different form, reaching its highest point in May and June; also with the beginning of July a falling off began which continued beyond the period of vacation up to the end of August. In the last week in August, for example, in Hamburg, a total of only 575 cases for the eighteen-year period appeared against 2,723 cases in the last week in June; but the fact that the morbidity curve for measles did not attain its lowest point at once or immediately with the close of the school and did not rise immediately when school began again, is what might naturally be expected on account of the relatively long period of incubation for this disease. In striking contrast to these three diseases is the morbidity from whooping cough. This curve rises in a marked degree in July and August. Whooping cough, however, is largely a disease that falls in the period before school age.[1]

That the school is a factor in spreading contagious diseases can be illustrated probably in any city of 100,000 inhabitants. At least it can be shown that the per cent. of such diseases is increased greatly during the part of the year when the school is in session. A tabulation of the cases of contagious diseases for the different months of the year for the city of Worcester made from the official reports of the Board of Health by my colleague, Dr. Hodge, shows the usual increase during the school period, as seen from the curves on page 84.

Two curves are given for each disease, in each case the upper curve is the morbidity curve, the lower the mortality curve. The heavy ruled lines at the bottom represent the school period; the vacant spaces between ruled lines the vacation. That the minimum number of cases occurs during the vacation is clearly seen. Take diphtheria, for example, the average number of cases per month for the school year 1893-94 was 16.9, for the vacation months of June and July 10.5; for the academic year 1894-95, 18.9, for the vacation months 11; for 1895-96, 31.5, for the vacation months 18.5; for 1896-97, 33.2, for the vacation months 11, for 1897-98, 27, for the vacation months 13.

These curves show typical results, similar ones might be made

[1] Schäfer: Ueber die Gefahr der Verbreitung ansteckender Krankheiten durch den Schulbesuch und die in dieser Hinsicht erforderlichen Maassnahmen. Deutsche Vierteljahrsschrift für öffentliche Gesundheitspflege. Band 30, 1898, pp. 629–630.

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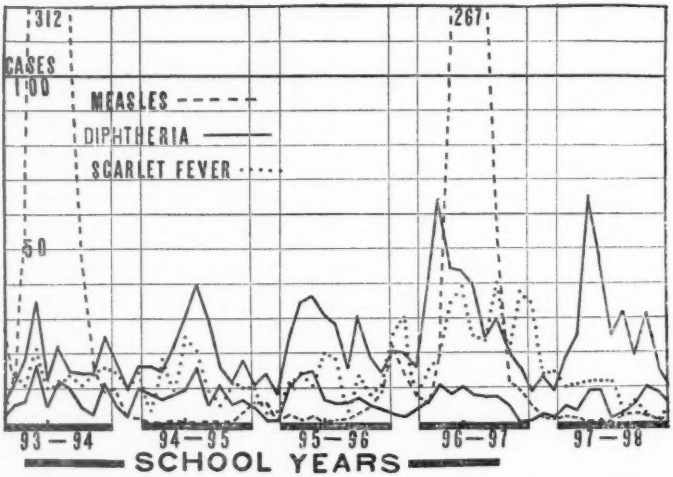
from the morbidity statistics found by a number of different investigators in different countries. The significance of such curves is obvious. They show a prevalence of these contagious



diseases during the school period, and a decrease in the number of cases during vacation. The causes of this greater prevalence during the months of the school year are perhaps many; among these are the influence of the weather, the long vacation coming at the most favorable season of the year; unhygienic conditions in the home as regards clothing, temperature, etc.; and perhaps especially unhygienic conditions of school life,—the crowding of the children into small rooms, lack of cleanliness, the dust in the air, etc. Whatever may be the chief cause, it is clear that these diseases are more prevalent during the school period. Children during these months of the year are more likely to be exposed to these diseases; if they are sent to school they are more likely to be exposed than if they remain at home, because they are brought into close contact with a large number of other children.

If the morbidity curve for measles had been given for ten years instead of five, the significance of the great rise in the curve at an interval of two years would be apparent; for the more extended curve shows a similar rise and fall at intervals of two years throughout its entire course. This illustrates the so-called law of immunity. A great epidemic of measles renders the majority of children in the community immune from

the disease and another epidemic will not occur until more children are born and a certain proportion of the total number of children become susceptible; that is, until the so-called "explosive point" is reached. According to Shelly the explosive point is reached when one-third of the total number of children have not had the disease, and it has been estimated that the interval between epidemics is five years in rural districts, while in large cities there is an epidemic every other year.[1] Worcester being a small city of about 100,000 inhabitants, the interval would naturally be somewhere between the period for a large city and that for a rural district; that is, once in about two or three years an epidemic might be expected, and this is precisely what the curve for ten years shows.

While the conditions of school life favor the spread of such diseases, with competent medical supervision the school affords also favorable opportunity for checking them. With all the children collected, inspection is easy; and cases are detected and isolated in the early stages that otherwise might pass unnoticed until the whole neighborhood was exposed to infection. But the work of detecting such diseases and of excluding children from school and readmitting them after recovery is something that can be done only by a physician.

As far as contagious diseases are concerned, the need for a school physician is too obvious to be argued in detail, but the advantage of such medical supervision may be seen also in regard to even many obscure diseases. Take for a single illustration, a very prevalent disorder—headache. It is not by any means easy to determine always the cause of headache in a school child. It may be a temporary disorder caused by the bad air, extreme heat, or other unsanitary conditions connected with the schoolhouse. It may be due to overwork; it may be a symptom of impending illness of some acute sort. It may be the result of chronic anæmia, or of some nervous or organic disease. It may be due to catarrh, or an adenoid growth in the naso-pharynx, or it may result from a decaying tooth, or from astigmatism or other eye defect. Not to mention the child's suffering, such a disorder interferes most seriously with school work, and the proper diagnosis of the cause may well be a matter for special medical knowledge.

Objections.

Many objections have been urged against medical inspection. In the first place, some physicians have objected on the ground that the creation of a special class of school physicians would interfere with the practice of regular physicians; and objection

[1] For a discussion of this point see Schäfer, *loc. cit.*

has been made on the score of favoritism. Again, objection has been made more seriously by teachers. It has been thought that medical inspection would interfere necessarily with the school work, and the right of special officials to come into the school would be a constant source of disturbance and friction. Objections have been made also by the community on the score of unwarranted interference with individual liberty. Dr. Arnold's report[1] shows some of the difficulties that the teacher and inspector are likely to meet from the ignorance of parents.

It is difficult to answer these objections seriously, in most cases the fact that they are made is a strong argument itself for the need of school physicians. The existence and work of such inspectors have an excellent influence upon the school in directing attention to the health of the children, also as an educating factor in the community. The most grave objections are those urged by the teachers. These have been stated by Schiller and others in Germany.

The Teachers' Association of Hannover-Linden adopted in 1899 the following resolutions which show the plan which many teachers favor instead of medical inspection.[2]

(1.) All pupils received into the school should bring with them a physician's certificate of health, in which proof is given by answers to definite questions that the child is physically capable of the instruction.

(2.) Such certificates of health may be given by any physician. The State should appoint physicians to provide these health certificates without pay.

(3.) If it is proved in the course of the instruction that a child is not sufficiently well for the school work, then he shall be examined by the physician appointed for this purpose. If this lack of physical ability is permanent, then the child, even against the will of his parents, may be sent to an institution better fitted for his case, an institution for idiots, blind, deaf, or special school, in case the parents do not prefer to have their child instructed privately.

(4.) In case of sudden illness among the pupils, during the school period, the director of the school has the right to call in any physician who happens to be accessible. In case the parents refuse, the cost for such consultation is to be borne by the city.

(5.) Medical supervision of the school buildings and the instruction in regard to universally accepted hygienic principles is necessary. The enforcement of these principles is controlled better (because permanently), without disturbing the

[1] See Report of Com. of Ed., 1897–1898, Vol. II, pp. 1494–1499.
[2] Zeitschrift für Schulgesundheitspflege, 1899, No. 7, p. 420.

instruction, without loss of time, without red tape, and without expense, by the teachers or the supervising school physician.

(6.) The constant supervision of the health condition of the school children is better left to the parents.

(7.) Medical certificates in case of absences and remission of work, as well as the notices of contagious diseases, have proved themselves to be sufficient.

Further, Director Schwalbe has argued[1] that the duties allotted to a school physician can only be in two directions: first, supervision of the sanitary conditions, air, light, water, heat, etc.; second, of the health condition of the children. In regard to the first point he maintains that these investigations may be made just as well by the teachers of natural science as by the physicians. Most of the physicians are not at all prepared to do this any way. As regards the second point, if the investigation of the health condition of the children is to be of any value it must be made carefully; but in Wiesbaden only three or four minutes were allotted to the examination of each child. He was convinced that it would soon appear that a thorough hygienic supervision of the school can be made only by the teachers.

Health Inspection in General.

The duties included in health inspection are obvious from what has been said; they are practically the same as those pointed out by Drs. Cohn, Esmarch, Schubert, Schiller, and other German writers.[2]

Who ought to perform these duties is another question. At the present these functions must be divided between the teacher, the superintendent, and special medical inspectors. Just what duties should fall to each must be determined largely by local conditions. In general outline, however, the natural division is apparent. All matters relating to contagious diseases, exclusion of children from the school, the making of cultures, closing the schools in case of epidemics, and certification of recovery, and the like, fall to the lot of the special school physician. He will naturally too, have charge of all tests of the physical condition of the pupils, and make the special examination of individual cases that may be necessary. He will further observe and report on any grossly unsanitary conditions

[1] Z. f. Schulges., 1899, No. 7, pp. 430–431.

[2] See the various articles in the Zeitschrift für Schulges.; "Die Schularztfrage in Breslau," Von Hermann Cohn, 1898, No. 12, pp. 643-659; "Schulärztliches," Von Professor E. von Esmarch, 1899, No. 7, pp. 373-396; "Vorschläge zum weiteren Ausbau des Schularztwesens," Von Dr. Paul Schubert, 1899, No. 8, u. 9, pp. 445-478; "Bedeutung und Aufgaben des Schularztes," Von Prof. Dr. Schiller, 1899, No. 10, pp. 573-579.

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in the schoolhouse or the surroundings, and he may naturally be expected to give advice in regard to the hygiene of instruction. On the other hand the teacher should naturally be expected to have constant oversight of the details of school hygiene, to report suspicious cases to the medical inspector, and to attend especially to all matters relating to the hygiene of instruction; noting whether the children are clean, whether they are overworked, whether certain occupations make them nervous, whether they sit in proper position, whether they strain their eyes, etc. In many places the teachers will also make many of the physical tests, at least the tests of sight and hearing, under the direction of the school physician. The other functions of health inspection not included in the duties of the physician on the one hand, and beyond the province of the teacher, should be attended to by the superintendent, and he should have general supervision of the sanitary condition of the buildings, direct the teachers in regard to the daily routine in matters relating to hygiene, considering especially the hygiene of instruction, and also should co-operate with the school physician in the precautions against contagious diseases and care for the general health of the pupils.

At present no other plan except this division of functions seems possible. In order, however, to make such a division of labor successful, it is absolutely essential that there should be intelligent co-operation of the teachers, superintendents, and inspectors, and to make this possible, special instruction of all three classes is necessary.

First the teachers should have special instruction in school hygiene. This is necessary, not merely for the direct value of the knowledge of hygiene in the schoolroom, but still more in order that the teachers may have the habit of looking at school matters from the point of view of hygiene and of considering the effect of different conditions and occupations on the health of the children, in a word, that they may have what may be called a hygienic apperception. In every normal school special courses in school hygiene, giving a thorough acquaintance with all matters of hygiene which especially concern the teacher as well as a general knowledge of the whole subject of school hygiene, should be prescribed for all students. It seems absurd to be compelled to plead for this; yet, in the majority of normal schools, no courses in this subject are given, or the work is subsidiary to something else, given merely incidentally in connection with school management, psychology, or the like. A concensus of educators declares that the aim of education is normal healthy development of the individual child, but the one subject which treats especially the conditions that favor normal healthy development is omitted from the curriculum. Again

there is a growing belief that education must be based upon scientific facts, but the one subject in which the scientific method has been most used, and where a large body of scientific facts has been collected, namely school hygiene, is not taught.

Second, the superintendents should be required to have a knowledge of school hygiene. However important skill in politics, or finesse in dealing with parents, or tact in managing teachers may be, no superintendent can to-day afford to be ignorant of school hygiene; and any community that permits such ignorance is careless in regard to its best interests. If the office of the superintendent is to be something more than that of a mere politician, the knowledge of school hygiene is certainly one of the essentials in the equipment of the supervisor of the schools. Most praiseworthy illustration of the attention that some superintendents are giving to this subject is furnished by a few recent school reports.[1]

Third, the school physician also should have special training. Dr. Schuschny has pointed out that the ordinary physician is not fitted for this special work. And he reports that preparatory instruction for school physicians is given in certain courses in the universities of Budapest and Klausenburg. The course continues for three months, and includes besides theoretical and experimental hygiene tests of vision. An examination is held at the end, consisting of a theoretical test in school hygiene, a practical test, and a lecture in the seventh class of the middle school.

Finally, for the best success it is essential that the community should be educated in regard to matters relating to health. From a purely economic point of view a strong argument can be made for medical inspection, for when disease is prevalent in the school the community has to pay for services that they do not get because the children are absent from school; and also, an epidemic of disease is an extremely costly thing for the community. Although medical inspection may not be very expensive, still it should be frankly admitted that it will cost something. It is true, both in the home and at school, that health costs money, but there is no investment that pays better dividends. Any community, however, that is willing to argue this question on a purely economic basis is one that so sadly needs education in regard to hygiene that any plan of health inspection will be seriously handicapped there.

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[1] As the best example of those known to the writer, see that of Supt. G. E. Johnson, in the Report of the School Committee of the Town of Andover, Mass., 1900. This report reflects not only the knowledge of school hygiene and the training of the superintendent who wrote it, but the good sense of the school committee who support such an official in his efforts.

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The readiness of the community to respond to any demand of hygiene when forced upon their attention is seen in the blind way in which legislation has been passed in regard to general instruction in hygiene, especially with reference to the effect of the use of alcohol and narcotics. Every State in the union, with one or two exceptions, now has a law requiring such instruction, and in one State this is the only subject prescribed by law. Yet, as has been pointed out above, special, extended study of school hygiene is not usually required in normal schools, and a knowledge of the subject is not as a rule required in the examination of teachers. Such legislation and lack of legislation appear ludicrous if one can forget for the time being the serious results that are likely to follow. The children are required to study hygiene, the teachers are permitted to neglect it. It is as if the directors of a hospital should require all the patients to study hygiene while the interns and nurses were permitted to enter upon their work without any such knowledge of hygiene and physiology. It may be said, of course, that the school is not a hospital, and yet observation and investigations show that in every schoolroom there are liable to be enough sick children to fill at least a small ward in a hospital, and hygiene is concerned anyway primarily in the prevention of disease and the fostering of normal healthy development rather than in the cure of disease. This blind legislation, however, shows the vague feeling of the community that something should be done for preserving the health of the children in the schools.

Special Medical Inspection.

While, as has been shown, the functions of health inspection must be divided, and teachers and superintendents have an important part of the work, still the need for special medical inspectors is evident from the facts mentioned at the outset; and the experiments with medical inspection, however unsatisfactory they may have proved, furnish evidence that emphasizes this need. Special provision for health inspection in the schools will soon be demanded everywhere. It is desirable that our own schools should profit in this matter from the experience of other countries. In view of what has already been done, although details must be worked out in the light of further experience, it is not difficult to determine what the general aim, scope, and plan of such inspection should be.

The aim of special inspection is four-fold. First, to check the spread of contagious diseases; second, to avoid over pressure and diseases due to the conditions of school life; third, to educate the teachers and the community in regard to the importance of considering the hygienic aspects of all matters re-

lating to education; and fourth, to contribute something to the advancement of the science of school hygiene. While the last function must be at first at least incidental to the others, nevertheless it is not too much to expect that ultimately the data collected in this way will be of great scientific value if the work is properly directed.

The general scope of the school physician's duties is clear from what has been said already. In many places chief among them are the following: the inspection of buildings and equipment, especially as regards cleanliness, testing of air, water, light, weighing, measuring, and general physical examination of the children; testing of the senses, examination of teeth, nose, throat and naso-pharynx, and of ability to work and to resist fatigue, general observation of the nervous condition of the children, etc., besides special care for those who are defective or ill, and the detection of contagious diseases.

As in every other matter concerning the schools in this country, the plan that can best be adopted must be determined largely by the local conditions. In the large cities, however, some such plan as the following would seem advisable. A special health officer standing on a par with the superintendent of schools should be appointed and paid a suitable salary. While it may be necessary that he should be under the authority of the Board of Health, nevertheless he should have a seat and voice in the School Board, should be consulted in regard to matters relating to health by the superintendent, and he should have a large measure of independent power. But such an official should be more than a mere school physician. He should be responsible for all matters pertaining to school hygiene in the broadest sense. A chief function of his office would be the co-ordination of the different agencies whose work is related to the health of the school child,—the architect, the sanitary engineer, the specialist in heating and ventilation, the special school physician, the janitor, etc. He should have general supervision of all the functions of health inspection, whether of the school physician or of the teacher. Nor is there anything so revolutionary in this plan. According to the Cleveland plan of administration, the pedagogical functions of the superintendent have been differentiated from the business functions, and the former are attended to by one official, namely, the superintendent, the latter by another official, the director. The plan of health inspection suggested would merely go a step further, and give one individual special power to co-ordinate the different agencies in school hygiene and make him responsible for all matters relating to health in the school. Until some one official, with both power and responsibility, is appointed to have special care of health conditions in the school we cannot hope to

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have existing evils reduced to a minimum and normal healthy development made the primary aim of education in our public schools.

This special health officer should be a man with competent training, having an expert knowledge of school hygiene as well as general medical training; as has been pointed out by German writers, it is not enough that such an official should have the general medical knowledge of the ordinary physician. This expert should have power to appoint the necessary number of medical assistants with the advice and consent of the Board of Health. And the number of children allotted to one physician should not exceed one thousand or fifteen hundred.

So far as concerns medical inspection in the narrow sense, with one expert chief inspector it would probably be possible to appoint young physicians for assistants and pay them merely a nominal salary, and in this way the expense need not be extremely great. The experience both in Europe and in this country indicates that, if the function of the school physician is limited to the detecting of contagious diseases and the like, the cost need not be considerable. In Boston young physicians have been found ready to undertake the work at a nominal salary, $200 a year.

In Germany very much more has been undertaken, and yet the cost has not been very great. In Wiesbaden for the first year the cost per pupil was twenty pfennige, *i. e.*, five cents. Now, with six physicians for nine thousand children with a salary each of $150, the cost per pupil is forty pfennige, *i. e.*, ten cents. This includes two examinations a year for each child. In Dresden with seven school physicians, and Leipzig with sixteen school physicians and sixty thousand pupils, the salary is only 500 marks. Darmstadt does better and pays its four physicians 1,500 marks each. Cairo pays her three school physicians still more; the first receives 9,600 marks, the two others 2,880 marks.[1]

Conclusion.

It will mark a great advance when all schools have special medical inspection in the narrower sense, but the ideal suggested above should not wait long for realization. Observation and special research show that a considerable percentage of the children in the schools are in such a condition of ill health that their physical development is vastly more in need of special attention than their intellectual development. The problem of caring for such children and of preserving the health of those who are normal is one of prime importance. Health inspection

[1] See Cohn, *loc. cit.*

in some form is imperative. The details of any plan must be determined with regard to local conditions; but in the view of the writer three things are essential.

First, the appointment of school physicians.

Second, the education of superintendents, teachers, and the community, as well as of those who are to be school physicians, in the essentials of school hygiene.

Third, the appointment in the large cities of a health inspector, ranking with the superintendent, and responsible for all matters relating to health in the schools.

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FOUNDATIONS OF NATURE STUDY.

II.

By C. F. Hodge, Clark University.

Our school curriculum is sometimes likened to a struggling mass of legs, arms and tails, each striving to subordinate all the others to itself and to form the center or main trunk of the educational plan. Discussion is thus rife as to whether language and literature, mathematics, drawing or nature study shall assume the control. This disorganized state of affairs may be due in a measure to vague conceptions in supposedly higher circles of thought as to fundamental functions of science and art. We often hear it said: "art for art's sake," "science for the sake of science," and recently we actually find a book entitled "Nature for Nature's Sake." These expressions are well enough, if they are intended to convey the idea that the value of truth and beauty is above and beyond ordinary means of human expression. It should be clearly understood, however, that none of these things have any "sakes;" and that art, science and nature, so far as they are related to mankind and to human education, exist solely for the sake of human character. And when any such ideas are used to sanction teaching of subjects as ends in themselves, *i. e.*, for their own sakes; when they incline the teacher to lose sight of the child in absorption in the subject, they strike confusion worse confounded into the foundations of any system of education, art or philosophy.

None of these organs of education can ever be more than subordinate organs. To all partisans for this or that special study as the center of our educational system we must say once for all, that none of their pet subjects are large enough to fill the position. Human life itself, human character, human power to do, human happiness, must form the main trunk. Special studies must all take their places as roots and branches, each to push out ever farther and higher and deeper into the universe of truth and beauty to elaborate and bring back such sustenance as shall make human life increasingly worth the living. The words of John Fisk (Destiny of Man, p. 12) have wider applications than his context implies. "Once dethrone humanity, regard it as a mere local incident in an endless and aimless series of cosmical changes, and you arrive at a doctrine which, under whatever specious name it may be veiled, is at bottom

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neither more nor less than atheism." So, in a system of education, dethrone humanity, displace from its central position the living, fundamental needs of human life and character, and we have only anarchy and confusion.

These fundamental human values attach to the studies of the curriculum, but the danger is, that the living purposes of education become obscured among the trivial details of method which must form so large a part of our work.

Music, for example, may be taught with all perfection of technique, as to tone and scale and interval, but with the result of failing to develop in the child a love for it. Premature forcing of method may, in fact, engender a lifelong dislike. But it remains as true now as when first spoken that he who writes the songs of a people need have no care as to who writes its laws. Here is a human interest which touches the very deepest life of individual and nation. What does the German Empire not owe to "Die Wacht am Rhein;" or England, to, "God Save the Queen?" For how much, think you, could either England or Germany afford to have these songs obliterated from the hearts of their people? Yet, two generations of neglect in musical education, not likely to occur in either of these countries, might go a long ways toward bringing this about.

The fundamental human interest in musical education lies in developing in the soul music which shall keep it white, make it unfit for "treasons, strategems and spoils," and put songs from beginning to end in the heart. In order to do this, and this is a point which applies equally to the teaching of science, we must put our very greatest and best music into our schools. And when we fill the children's hearts to overflowing with great music, there will be no room for the demoralizing street jingles which assail the ear on every side. As I have been informed, from schools in which this has been seriously tried, even little children come to feel their worthlessness and to hate them properly.

So too with literature; I have been told by an intelligent English teacher that Spencer's utilitarian doctrines are tending to banish literature from English schools. But this is not at all the legitimate application of Spencer's teaching. It is nothing short of national and educational suicide, for to literature we must look for ideals of character and life. Gottschall has well said that Schiller did more than any one else in winning the Franco-Prussian war by implanting in every German heart ideals of heroism and love and devotion to country. And the abject defeat of the French is mirrored in their worthless literature.

But down in the foundations of our literature courses we must have the spirit that maketh alive, rather than the letter that

killeth. We hear a good deal of shallow talk about doing away with classical studies, not so much just now, perhaps, as a few years ago, by those who do not seem to be able to realize that in them we find ideals of life and visions of beauty which can never grow old.

Turning toward the field of science, mathematics, is sometimes taught as dry mental gymnastics, wholly abstract and apart from human life and interests. No conception could be more unwarranted or grossly false. As a matter of fact, mathematical education touches most intimately every human interest, individual and national. It must be the foundation of every business enterprise. All our buildings from private and tenement houses to most difficult feats of engineering in construction of great public works, the building of bridges, dams, aqueducts or battleships, require it. If they have been built mathematically correct, they will stand the strains and shocks to which they have been figured. If they have been "fudged" together with no regard to the mathematical and mechanical problems involved, or if these have been wrongly solved, we shall have all sorts of calamities, business failures, buildings collapsing, bridges falling through, boilers bursting, ships foundering.

A good example of large national interests attaching to mathematical education may be seen in the battles of Manila and Santiago. Those were "practical examinations," among other things, in American mathematical education, and we may congratulate ourselves upon the result. In final analysis those battles were won by having woven into the warp and woof of the brains of those gunners the mathematical truth that it is only waste of time and ammunition to pull the trigger of a cannon until it is aimed mathematically straight. And on the other hand, Spain has her priest-ridden, superstitious public education to thank for the abjectness of her defeat. It is the necessary consequence of having a force of gunners who apparently seemed to think that they could shut their eyes and bang away, and that the Holy Virgin would supply the mathematical accuracy which they lacked. It may have been hard work enough, some twenty or thirty years ago, drilling ideas of mathematical exactness into the heads of the boys who are now gunners in the fleets; and we catch just a glint of the national interest that hung upon those faithful lessons. Is it not inspiring to hold this larger view always before us? In what other way can we transmute the dross and drudgery of elementary teaching into the gold of human work, than by mingling with the daily task all the best human interest which it may subserve?

I have been obliged to make this long detour to get clearly before us the far reaching human values of education. I have had

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educators high in their profession look at me in surprise and ask what the human value of a study meant. They seemed to be so wrapped up in ideas of "mental discipline," "training the powers of observation," "acquiring knowledge," etc. etc., or of method grinds of doing this or that, kinds of education that would gain the whole world and lose the soul, that they fail to see the bearings of their own work beyond the walls of their schoolrooms. And I have purposely touched on the values attaching to studies as far removed as possible from our theme in order to escape the charge of partisanship and narrowness which doth so easily beset the educator on every side.

We have briefly treated the side of nature study which touches the fundamental interests of the race. We have found that these are purely biological, the domestication of animals and the cultivation of the soil, these being the primitive, epoch-making steps toward civilization. It remains to consider the subject more particularly from the side of the individual and to inquire in some detail what kind of knowledge of the nature about him is really fundamental to formation of civilized character of the best type.

With the flood of talk and writing we have had about "enriching" the school course and all the complaints about crowdding in too many subjects, it is certainly strange that we have heard so little about proper quality of knowledge and means to its attainment. Even the proverbial quality of "thoroughness" is being repudiated. In quantity and variety nature is infinite, and we may as well drop all thought of learning but a very small part of the whole scheme, so that the quality of what we do learn becomes of tantamount practical importance.

Many will say knowledge of nature should be scientific in quality. This is true, however, only so far as we have the essential idea as to what "scientific" means. It is our present misfortune to be living under a most inadequate notion, a dead, book-museum conception of science. What is included in the dictionary definitition "classified and arranged knowledge" is, at best, but the preserved "remains" of what was once science. Minot states the case exactly when he says in effect that books are the repositories in which science has been decently interred. But this lifeless, cut-and-dried idea of science has usurped the field, and we have elementary text books stuffed from cover to cover with "classified and arranged knowledge." Lubbock well calls them the "dictionaries and grammars of science;" mere tools of knowledge which should only be used when required; and there is great need that the revolt against the dictionary and grammar method in language be carried over into the field of science. The essential idea of science being the process of knowing, books do not contain it, but only men.

That it may be resurrected out of a book by a mere process of memorizing is a most egregious fallacy.

For anything fundamental in regard to nature study we must adopt Lessing's conception of science. According to this, science is the unceasing struggle of the human mind after truth. Furthermore, this struggle is so inseparably linked with normal growth and vigor, and so full of the bounding joy of human action, that the struggle is to be preferred above actual possession of very truth itself. This struggle is thus what chiefly makes life worth living. Indeed, according to Professor Brook's luminous definition of life; "Life is education, conversely education is life;" it is life itself.

In order to see this truth in its important relations we must make a qualitative analysis of knowledge. It will then appear as to what kind of nature study we need to impart the desired quality, and this will bring us to the intellectual foundations which we are seeking.

Huxley has well said that knowledge gained at second hand, by hearsay or from books is infinitely inferior in quality to knowledge developed at first hand by actual experience and direct contact with the phenomena of nature. This is the self-same idea as is expressed by the proverbial Yankee distrust of "book larnin." But in spite of an apparently clear and generally accepted notion that such infinitely inferior knowledge cannot make a man who is able to do anything worth while in the world of realities and actions; how much besides "book larnin" do we have in our public school curriculum? John Milton, also, makes luminous a similar distinction, and finds the reason why the best youth of his time "grow into hatred and contempt of learning to spend their days in feast and jollity" in the fact that during school life they had been "mocked and deluded with ragged notions and babblements," had been deceived during all their most "docible years" by being set an "asinine feast of sowthistles and brambles, while they had expected worthy and delightful knowledge." And Francis Bacon, in laying the foundations of modern science and education, attempted seriously to distinguish between "The relative values of knowledges." So, too, we find even more ancient discriminations between "knowledge that puffeth up," and "the excellency of knowledge that giveth life;" "knowledge that is to be desired rather than choice gold," and knowledge of which Isaiah says, "Thy wisdom and thy knowledge, it hath perverted thee." And George Eliot somewhere says, in effect, that if the earth and all the heavenly bodies by their revolutions for a thousand years shall have succeeded in taking a grain of conceit out of a single human being, it all would not have been in vain.

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Mulling over lines of thought suggested by such things as the above, it has seemed to me that this matter of quality in knowledge must form the rational foundation upon which to build our system of education, the common soil out of which developments of all art and science and all specializations of life should grow. Wholly engrossed, the while, in special pursuits, I supposed that plenty of other men were attending to this side of our educational problem, over in the camp of the pedagogues and psychologists, and that everything was moving, or might soon be expected to begin to move, smoothly and rapidly in this direction. But during my teaching experience in college and university I have been rudely shaken out of this comfortable state of mind to a realization that our exigency is an educational crisis and that every one must take hold. The whole time I have heard professors complaining that they would rather their students should come to them without ever having heard of chemistry or physics or zoölogy or botany, entomology or what not, than to have been given a so-called course in these subjects in the public schools. I do not wish it understood that I think a course in natural science in the public schools should be planned with reference to college requirements. It should clearly be devised as a preparation for life rather than for college. At the same time, if it were a course calculated to best fit for living, it should also best fit for college. If not, college requirements cannot be changed too soon. This matter is becoming of great importance in proportion as co-ordinations are being rapidly effected between public school and college courses. Under the present glaring disadjustment, a child's course in natural science is often a successive chewing over and over again of cuds that become nauseatingly stale. Instead of a natural and healthy progression a child is given technical minutiæ in the grammar school, possibly in the primary or even the kindergarten, the same things are ground over in his high school course and again in the college and still again in so-called university courses, to say nothing of the successive years in each, and, as a result, he naturally comes to feel that he has learned everything worth while a dozen times over. Instead of the normal impulse to go on into the world of life and truth about him, he becomes disgusted with the whole subject.

The question naturally arises at this point; can this lack of adjustment be charged, in part at least, to the crankiness of college professors? Is each one so peculiar in his methods and notions of work that he is unable to build upon the knowledge foundations that others have laid? Possibly I am disqualified from speaking on this point but so far as I have been able to judge, this is true only in rare and notorious exceptions. In practically all cases, if a student is possessed of the energy and

the will to work, any instructor is only too thankful. If he have developed in addition some ingenuity and inventiveness which enables him to devise his own methods and apparatus, certainly the majority of professors would prefer that he do his work in his own way.

So far as I can see the main difficulty lies in the habit of mind and the quality of knowledge that the pupil has already acquired. A single concrete instance may make my meaning clear and it has stood before me as a picture which goes a long ways toward explaining the situation.

A boy of good ability has just completed his high school course. In a conversation with a friend the question is raised about going to college. "No," he says, "I have no use for college. A man is a fool to go to college after he has had a good high school education. Haven't we learned everything there is any use of knowing? We have had astronomy and geology, chemistry and physics, botany, zoölogy and physiology and psychology and political economy, and a great many more, I don't see as there is anything more to learn. And if we forget something, why, there are our books: we can learn it over again."

What do we mean by "knowledge?" What do we mean by "knowing" or "learning" a thing? Is it possible that any are so deceived as to think that when a child has read some words in a book, or has heard some words, and is able to repeat them that he has learned anything; at least, anything but words?

That the above is a true picture of a good deal of our high school product cannot be gainsaid, and if it may be considered a sample of the kind of education that Professor Peck is inclined to think a positive misfortune to a great many, "the mother of unhappiness alone," we must fully agree with him, for in so far as "education is life," mis-education may be death.

Analyzing the case more closely, what do we find? First, a mind filled with book and second-hand knowledge of "infinitely inferior" quality; worse still, a mind completely satisfied with this kind of knowledge; and, worst of all, a mind conceited, "puffed up" over its little hoard of rubbish. Do you wonder that such a specimen is the *bête noir* of the college instructor? Around such a man the processes of nature may flow on forever. There is little hope that they will be able to take a grain of conceit out of him. It will probably never penetrate to his encrusted soul that there is anything worth learning that he does not already know, or, at any rate, that he cannot find in a book. In the provinces of any one of the sciences, the names of which he can recite, are vast untrodden fields of truth yet to be discovered for human enjoyment and use, but no chance of his ever treading them. In nature on every side there are things to

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know something of which his happiness or very life may be depending. If he even knew that he did not know, he might have the wisdom to obtain the help of some one who does know. Even worse, if some conformity to the laws of nature be forced upon him by external authority, possibly by the health officials of the community, he will be just the man to oppose all improvement of existing conditions on the ground that he knows better.

In a word, the knowledge of such a man, instead of being vital and life-giving, growing into fullness with his growth for the enjoyment and use of himself and those around him, is a dead load on his memory, the occasion of a sort of fatty degeneration of the soul.

But suppose a youth in this condition be advised or constrained to go to a university and continue, if we may so designate the process, his studies. What kind of a picture do we have then? His instructor asks him for an account of the work he has done along the line he proposes to follow. Our student names over a number of books and courses he has taken. Very well. The professor next asks him whether he is especially interested in any particular problem that he wishes to solve. He evidently does not understand the question, and the instructor puts it more plainly. Is there not some particular point in this whole field which you are conscious that you do not know and have not been able to find in books, and that you think may be worth your time and labor to investigate? No, he does not think of any such point. He has never been taught to look at the subject with a view of doing anything about it himself, rather, of having somebody else do everything for him. The very essence of science, the first great requisite of all genuine learning, so clearly defined as long ago as the teaching of Socrates, the vivid realization of ignorance has become no part of his mental equipment. For so many weary years he has been compelled to memorize from books and lectures that he has come to feel that education and science consist in this sort of sausage stuffing.

Finally, the instructor shoulders the man bodily, gives him a problem that he is anxious to have worked out, gets all the material and apparatus ready to his hand and tells him to go to work. Next day he calls at the man's laboratory and finds him reading a book. Asks him what he has done? What observations he has made? What experiments he has tried? And finds that he has made no observations, done nothing, but has found a "very interesting book." And so it goes. Every day the man is where he happened to have been dropped the day before. So far as power to do anything with the phenomena of nature as they actually exist in the world he seems to be blighted and paralyzed for life. He has no more "go" in him than a bag

of mush. We must agree with Dr. Minot again, when he says it is easier to make a competent investigator out of a dull man than out of a conceited man.

I am not inclined to lay the blame for such specimens on teachers, but rather on the whole educational system that has so much passive instruction, the legitimate outcome of which is this sort of stuffed sausage of a man. Or the trouble may lie back of the school in the home where a child is always told everything to do, or not to do, where he is seldom left by himself to originate a line of action out of his own being. And I do not dwell on this feature of our educational problem in any spirit of complaining or discouragement, but look upon it rather as a necessary embryological phase, a "rest period," as it were, in our development, and rejoice in the many signs of a change from the passive, receptive, to a more active and productive type of education. All embryos from starfishes up, and possibly even educational systems, grow this way.

The dawn of active education in this country is patent to all in the practical applications which Herbart's doctrine of apperception and Fröbel's of self-activity are finding in our schools; in the rapid extension of the kindergarten, in manual training, in physical culture and, we may hope, in a kind of nature study that shall meet this requirement, and in the prominence now being given to independent work and to research in our colleges and universities. As Burnham puts it: "The great maxim of modern reform in education is the activity of the pupil instead of the didactics of the teacher. There are but two methods of instruction as regards the pupil, the active and the passive; as regards the teacher, the method of demonstration and the method of suggestion. *The active method of the kindergarten and the university should be adopted in all grades.*" (Italics mine.)

In proportion as education becomes thus active, nature study must take a prominent place in the curriculum. What else is there to work actively about except natural phenomena, responses to which have constituted the chief education of living forms from the protozoa up? And we could wish for nature study nothing higher than Fröbel's theory of education; as the "system of rules which may guide intelligent beings to the apprehension of their life-work and the accomplishment of their destiny." Says Superintendent Zech, describing what he actually saw in Fröbel's school: "Self-activity of the mind is the first law of instruction, and this so well adapted to the child and his needs that he learns as eagerly as he plays. What the pupils know is not a shapeless mass, but has form and life, and is, if at all possible, immediately applied in life."

What we need, then, in nature study, as in all other subjects, is a quality of knowledge which shall be alive and set the child's

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face right toward the universe, and thus form the foundation for active, helpful, living.

I supposed that all I had to do was to find a flag of truce somewhere and go over to the camp of the psychologists and get a clear analysis of knowledge which would be exactly what we need. And I asked the psychologists for a qualitative analysis of knowledge. Imagine my dismay when they, one after the other, looked at me in mild amazement and said that they did not understand what I meant. They had not heard of any such thing before. Did not any modern writer give clear distinctions between different qualities of knowledge? "No," I was told, "not if he knew what he was about."

However, a man must not be thin skinned with psychologists. It seems to be true that the books give us about as much light as to the kind of knowledge that makes a man, or helps to make one, as they do about the kind that makes a poet. But by dint of persistence and argument that there really is a kind of knowledge that lies like a burden on the soul, a kind of knowledge that makes tramps, vagabonds, common-place, stupid, uninteresting, good-for-nothing people (and recent studies have shown that our tramps are not foreign-born, as we are wont to think, but are the legitimate product of our own schools), and by insisting that there really is a quality of knowledge which forms a living center of interest, a wellspring of efficient activity and happiness, and by roundly abusing my psychological friends for being woolgatherers, I was rewarded at last by obtaining two beautiful analyses, whose chief service, it seems to me, may consist in supplying a fundamental rationale for nature study and for science teaching in general. The two analyses, though obtained by different methods, like two good chemical analyses, amount to much the same thing, and for sake of confirmation I will give them both.

Dr. Hall's qualitative analysis of knowledge is as follows:

Some fact in science is discovered, and a man casually reads about it or is told about it by a friend. He probably gains in this way a dim, far away notion, and soon forgets all about it. Second. His friend takes him into his laboratory, sets up the apparatus and demonstrates the discovery before his eyes. From this he gets a much clearer knowledge. His friend next places the apparatus at his disposal and lets him try the experiment himself; and his knowledge takes on a still stronger quality. It might be difficult now for him to forget the circumstances. Suppose, finally, the man works out the problem himself, devises, possibly makes his own apparatus, works days and nights in meeting difficulties and in overcoming obstacles, until, at last, he has his result definite and clear; until he has, himself, added a new fact to the sum of human knowledge. The discovery,

the knowledge, has now become a living part of himself, an inspiration and a satisfaction as long as he lives.

Is not this analysis fundamental to our whole theory of education? Does it not reveal ways of suggesting subjects that may stimulate interest rather than dull it? The thought has an infinite number of practical applications and points out, along the line of Herbert Spencer's chapter, "Of What Knowledge is of Most Worth," the kinds of subjects that may awaken each pupil and set him to work. Suppose the discovery be something that may have an every-day application to life, a person, on merely reading about it, may have his interest so thoroughly aroused that he puts the truth into practice, uses it, and comes to know and value it. So, too, if the discoverer finds that his work may result in betterment of human life, the emotional tone, that imparts all value to knowledge, must be enhanced proportionately to the human importance of his discovery.

We may pass on to the second analysis, kindly given by Dr. Sanford. It has many features in common with Herbart's doctrine of apperception. In outline it is as follows:

All knowledge is at bottom an association of ideas. Each new idea depends for its quality upon the combinations or associations that it forms with other ideas already in the mind. Like a chemical compound, each bit of knowledge depends for its qualities upon the elements which enter into its composition. Now there are certain ideas of fundamental omnipresent, enormous, human importance. Spencer enumerates some of these in the order of their educational value as follows. 1. Ideas centering about direct preservation of self. These are known to be most keenly alive in young children. 2. Ideas connected with self-preservation indirectly, relating to food and the necessaries of life, also especially strong in childhood. 3. Ideas relating to preservation of the family. 4. Ideas pertaining to the State. 5. Ideas associated with one's pleasures and the gratification of his tastes. But if any object to Spencer on the ground of his utilitarianism, certainly Ruskin was an idealist, and even he says: "The first sure good consists in feeding people; the second sure good, in clothing people; the third in housing people, and the fourth in properly pleasing people with arts and sciences." If a new idea becomes associated or compounded with any or all of these great omnipresent ideas, it immediately begins to share their quality. Add to this one other consideration. It often happens that by simply putting two chemicals together in a test-tube no action takes place and we get no combination. We may have to bring them to a boil. So, as well brought out in Dr. Hall's analysis, where the man actually works out his problem, it generally requires human

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action, the higher the better, to unite into anything like a consistent whole the stock of mental elements that a man gathers into his life.

We thus touch the deeper biological foundations discussed in the first paper and find that only such knowledge as is associated with real human interests by vigorous human action is of the quality that makes the getting of knowledge worth the while. This is the kind of nature study that has made life worth living in the progress of the race, and the fundamental thing is the worth-whileness of the learning. Nothing else can take the place of this. Even the personification of drops of water and butterflies as Mr. and Mrs. this or that can effect no magical transmutation of dross into gold of human good. Nature unadorned is best adorned, and all the many attempts to pump up fictitious values only serves to effect in me a distinct feeling of nausea, and it is not uncommon to note a similar reaction in children.

The active method of nature study as related to the child may be fully discussed in a third and final paper of this series, in which it is proposed to review methods of elementary science instructions now in the field. In the above I have endeavored to prepare the ground for this by laying its deeper psychic foundations. It remains merely to add that we need this living spirit of science, of genuine research, of whole-souled, worthwhile activity to leaven the whole lump of our public education. We need it as we need life itself. It must come to be the very breath of life of our educational system.

An intelligent teacher recently said to me that an attempt at this kind of nature study had revealed to her the fact that present cramming methods were doing all possible to make the children "helpless little imbeciles." This spirit of active, independent thinking and doing should be developed, of course, in relation to all the studies of the curriculum but the source and fountain head, of it all, the mother of the whole process and its continual nourisher and supporter must ever be Nature, "The old Nurse;" and its fundamental methods must be those she has seen fit to employ in the education of the race.

In what other subject do we have such an infinite array of problems touching human life on its every side? Where else do we find all these problems of life

> Made fresh with every new blown rose,
> Alive in everything that grows,

except in the continual flow of living processes about us?

Indeed, the difficulty in selecting material for nature study courses is one of *embarras de richesses*, and always will be. This brings us to a fundamental question, upon the correct answer

to which depends the success of every attempt at nature study. It is the pedagogical question of the relation of teacher to pupil. At present the dry rot of our system consists in the impossible notion that the teacher must "know it all" and that education is "filling jugs." In the infinitude of nature this impossibility becomes self-evident, and the introduction of rational nature study must eventually cure this baneful malady.

How does it happen that so many of our leading biologists in this country are the intellectual children,—Brooks, Whitman, Mark, Smith, Birge, with a host of grandchildren now in nearly every prominent biological laboratory in the land,—of *Louis Agassiz?* On the one hand, no teacher ever had such power to set his pupils to work. On the other, we are told:—

> "His magic was not far to seek,
> He was so human."

The same is true of the great Carl Ludwig in physiology, and there is scarcely a physiologist from Siberia and Japan to America who has not been born under the spell of a like magic.

These great teachers did not give so much information, instruction, demonstration. Their highest service was to tell their pupils things that they did not themselves know, at the same time revealing the importance of finding them out. They gave, instead of stuff to be memorized, life works and life-long inspirations to do them. They were able to do this because their own minds were so keenly alive and active, and their whole personalities were so largely human and so thoroughly imbued with faith in the human value of truth.

In just this field, nature study, better than in any other subject in the curriculum the teacher may, and if he succeed, he must, assume this ideal relation toward the child. He cannot, if he cram up a mass of nature lore and compel the child to memorize it, that is intellectual murder; but if he inspires the child to go out into nature and learn something for himself and come back and tell it to his teacher and the class; and all the better, a hundred fold better, if it be something that the teacher did not know before. What an infinite delight it is for a child to tell a teacher something he did not know; to find out something, not set as a puzzle, the key to which the teacher holds, but something the teacher actually wants to know. Every teacher can give this delight to every child in his nature study class every day:—when he enjoys saying, "I don't know, but I wish you could find it out and tell us."

Important human values attach to all ethical and social relations, and an infinite number of these are associated with the nature in the midst of which a community lives. To do a thing in the best possible way is an ethical matter.

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Hence competitive effort, as previously discussed, assists fundamentally in ethical culture. To plant a tree by the wayside is an ideally ethical thing, and it may be done with scarcely more than the turn of the hand of a child. To rear a beautiful flower may raise the ethical, as well as the social and æsthetic, tone of a whole street. The same applies to filling the country with our valuable native birds and utilizing all the resources of nature for the highest human good. On the other hand it is an ethical crime to destroy the goods of nature. In some of our States laws have been enacted which makes it a misdemeanor to allow weeds, insect pests or fungous diseases to breed upon a man's premises, because they may cause his neighbor serious loss. These laws will doubtless spread rapidly over the whole country, but we can have little hope of their effective observance until the knowledge of the phenomena of nature upon which they are based becomes common property of the community. We shall need to have these fundamental ethical relations clearly in mind for the final chapter in this series, but they are so patent that to develop them further is unnecessary. Suffice it to say that in our present exigencies of hoodlumism and juvenile crime and vandalism these ethical relations should be made discreetly prominent in all nature study courses.

In reality these fundamental relations, biological, intellectual, ethical and, we must add, religious, inhere together as inseparable elements in the formation of human character, and they can be discussed apart only as a matter of superficial convenience. It remains to point out a fundamental religious bearing that a rational nature study possesses.

The works of Drummond, Tyler and John Fiske have at last put a period to the so-called warfare between science and religion, and the philosophy of evolution has become one of the deepest sources of inspiration for religious character and life. In regard to formation of character in the individual as in the race the process of evolution may be safely taken to indicate the norm for development to follow. We have learned the futility, even the fatality, of cutting off the tadpole's tail to hasten development of the frog and we have begun to see its bearing upon educational mutilations of the human soul. Still we know that environment may hasten or retard the embryological process. In darkness or cold water or with lack of proper food the tadpole may live and die a tadpole. The Scylla of arrested development is as great, if not a greater danger, than the Charybdis of mutilation, and one of the most significant laws touching this subject is that of acceleration, and abbreviation of embryological stages in order to save time and bring the individual to a higher plane of organization. In other words, the plain duty of the educator is to see to it

that environment is the best possible and favors the normal evolutionary process at every point. Where this is not done all sorts of malformations, arrests and even degenerations may result.

It is only in view of a more helpful theory that I incline to consider "nature worships," as we find them in savage races, and all the various "falls" from harmony and adjustment to nature as such malformations and degenerations. As such, they are not even embryological stages in normal human development, but something wholly aside, mere "stigmata." I cannot do better than sum up the argument in the words of John Fiske (Through Nature to God, p. 114), when he says: "But suppose we say that the ultimate goal of the ethical process is the perfecting of human character? This form of the statement contains far more than the other. (Which is that the end of the ethical process is the perfection of human happinees.) Consummation of happiness is the natural outcome of the perfecting of character, but that perfecting can be achieved only through struggle, through discipline, through resistance. It is for him that overcometh that a crown of life is reserved. The consummate product of a world of evolution is the character that creates happiness, that is replete with dynamic possibilities of fresh life and activity in directions forever new. Such a character is the reflected image of God, and in it are contained the promise and the potency of life everlasting."

Character forms by active exercise of virtue, and in the nature about us we find infinite opportunities for such exercise. Moreover, nature points out the channels for its exercise and especially in living nature the continual, active flow of energy in growth and reproduction indicates in a thousand ways the directions it must take. The laws and forces revealed in nature are the highest and best that an omniscient Divinity could devise with which to create the happiness of his creatures. We cannot hope to discover any better ways, and in doing the work which God and Nature have set man to do, what higher religious development can a child attain than to become the reflected image of the Creator.

If Adam and Eve had done as they were told and had attended to their garden, we might be living in paradise, but they did not. If the children spring into obedience with the same divine command, we may be living in a paradise yet in a few years.

But the hereditarians say that Adam and Eve did not do it and their own fathers and mothers have not done it and the children will not do it. And the fatalists say "They cannot do it." And the pessimists say, "It would n't do any good if they did do it." I will consider the matter with the hereditarians and the

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fatalists and the pessimists with reference to practicable methods of work and especially from the point of view of the child's relations toward nature in the concluding paper. Adam and Eve may not have been sufficiently convinced of its worthwhileness and we may have benefited by their experience.

STUDIES IN IMAGINATION.

By LILLIAN H. CHALMERS.

Communicated by H. Gale, Psychological Laboratory, University of Minnesota.

In one of Prof. Sully's "Studies of Childhood," 1896, p. 45, some statements were made which seemed to the author questionable. We fancied, judging from our own experience, that the statements were not true, and, accordingly, we issued a blank containing the questions given below, in order to ascertain the truth regarding these statements concerning doll play, and also to learn facts of interest along other lines of imagination. Some 1,800 copies were distributed, mostly among university students and public school teachers of Minneapolis. We received 282 returns. From teachers 70, female students 91, and male students 121. The teachers were all females.

Question blank for the study of imagination.

1. What literature did you enjoy most as a child and at what age?
2. What kind of literature do you approve for children and why?
3. Your age when you discarded dolls? Name any other child fancy that continued longer. (Male answers are as much desired as female.)
4. Why did you do so? (State any change in circumstances or yourself that may have been the cause.)
5. Is it hard now to realize or revive your feeling for your doll? Compare with some other games of your childhood, *e. g.*, horse, mud pies.
6. In what manner did you play with dolls? (In close imitation of real life, or merely as an object to dress and fondle?)
7. Did you keep the same doll throughout your childhood or did you have many dolls?
8. Have you preserved your doll?
   a. If so, why? (Has the beauty or value much to do with it?)
   b. If not, why?
9. If you conceive numbers or divisions of time in any form, if they have color or personality, please explain or draw and state how such forms originated, if you can.
10. If you were to call any numbers male or female, which would they be (would even ones be male?), and why?
11. Can you add or compute rapidly?
12. Do you visualize your addition, and if so how?
13. If not, how do you add?

I. IN DOLL PLAY.

The statement referred to above, made by Prof. Sully, is as follows: "Do any of us really understand this doll-superstri-

tion? Writers of a clear long-reaching memory have tried to take us back to childhood, and restore to us for a moment the whole undisturbed trust, the perfect satisfaction of love, which the child brings to its doll. Yet even the imaginative genius of George Sand is hardly equal, perhaps, to the feat of resuscitating the buried companion of our early days and making it live once more before our eyes. The truth is, the doll illusion is is one of the first to pass. There are, I believe, a few sentimental girls who, when they attain the years of enlightenment, make a point of saving their dolls from the general wreckage of toys. Yet I suspect that the pets when thus retained are valued more for the outside charm of pretty face and hair, and still more for the lovely clothes, than for the inherent worth of the doll itself, or what we may call the doll-soul which informs it and gives it, for the child, its true beauty and its worth." Sir John Lubbock is quoted as saying that the doll is a hybrid between the baby and the fetish, and that this hybrid is singularly unintelligible to grown-up people.

From the answers to questions, 3 to 8, we find that about 12% of females never cared for dolls. Of the 88% who did play with dolls about half did so till about twelve years old, while not more than one-fifth discarded them under nine. More than half kept up the doll-play longer than any other childish fancy. Other "fancies" mentioned as continuing longer are: 1. Those things relating to doll-play, as house, paper dolls, etc.; 2. Impersonating characters; 3. School; 4. Games; 5. Day dreams; 6. Mud pies. Some of these can scarcely be considered illusions at all, and none take such stretch of the fancy as the doll. Of those who discarded dolls at twelve or later, fourteen did so for shame, as against three from those who discarded them at nine or under. In all twenty-four discarded them for shame. The time of giving up a doll is marked in general by tendencies toward older things, such as reading, learning, and industry, and towards a more intricate kind of imagination, such as is employed in these occupations and in day dreams. The child instead of becoming less imaginative becomes more so; the imagination is less wild, hence less noticeable, but more complicated, hence of higher quality. The doll illusion, instead of being one of the first to pass, is the one above all others that holds the child till it begins to be a child no longer; then it passes suddenly, and in a sense completely, but not more so, nor as much so, as other illusions. Only those games which depend chiefly upon the imagination for their attraction can be classed as illusions along with the doll. All romping games, and those of chance and achievement partake, in part, of something enjoyed to a certain extent by any one. Hence we can fathom the feeling the child has for these; but the doll may seem so far removed

from us, along with personified spools, etc., because it is purely a childish fancy and illusion. I say "may seem," for the answers to question five show that the majority of young women do not find it hard to realize or revive their feeling for their dolls, but easier than for any other childish fancy. Especially is this true of those who play with dolls as real children, mother them and love them as their own children. Many girls care for dolls chiefly to dress and carry round, not making any point of the doll's individuality or of their motherhood to them. These latter gave up dolls earlier and find it harder to revive their love for them. Of the 88% of our women who played with dolls 55% claimed to be able to revive their feelings, 51% as easily or more so than for any other childish fancy, 24% stating explicitly that they do so more easily. Only 19% of all the women can revive some other better, and only 20% of these can revive the doll love at all. Of those who played realistically 75% can revive their love. I should judge that the average age of the females might be between twenty-five and thirty, few being younger than twenty. Several say they would enjoy playing with dolls now, and one who did not care much for a doll when young said: "I confess that I have a longing now, occasionally, to have a doll, and even at forty, if no one knew it, I should really like a doll to hold and make believe with when I am very much alone."

Nearly 40% have saved their dolls, 10% more would have done so if circumstances had permitted. Only 7% saved them for their beauty or value, 12% merely as a relic, and 29% for the love they had and still have for them. Thus not a few, but many girls saved their dolls, and the pets when thus retained are valued scarcely at all for their beauty or clothes, but for the imagined worth of the doll itself. Again and again do they emphasize the fact that beauty and value have nothing to do with it. The dolls they have saved are anything but beautiful. Rather, as in childhood they cherished the noseless, wigless companion in preference to the nice new doll, so now they have saved from among all other childish treasures those that personal attraction has given the least right to remain. Only one states that she saved some other prettier doll than the one she played with most. Having younger children to play with lessens the attraction of the doll a good deal. It sometimes happens that the time of giving up a doll is marked by the transfer of the girl's affection from the doll to a new baby.

Those girls who play doll till twelve or later, in distinction from those who played only until about nine, are largely the same as those who finally gave them up under compulsion, who kept no other fancy longer, who can realize their feeling for them better than for other child fancies, who played in a realistic manner, had the fewest number of dolls, and saved their

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dolls because fond of them. They are also the women of more scientific taste, steady habits, and the least sentimental.

Though the men did not play with dolls till any considerable age, yet 20% did play with them, 15% of these till after the age of eight years and one boy played until fourteen with paper dolls. It is reasonably certain that this one kept no other fancy longer. He discarded his dolls for shame, and yet he cannot revive his feeling for them as well as for some other fancy. Of the boys using dolls two can revive their feelings quite well, but can revive that for other things equally well. Among the 36% who claim to have played with their dolls in close imitation of real life, are to be found all those who played until eight years and those who can revive their feelings. Four saved their dolls, not, however, for any fondness of the doll itself.

Conclusions: 1. The imaginative ideas and emotions in doll play can be revived by a majority of women and better than any other imaginative play of childhood.

2. With the majority of women doll play continues through childhood till the period of adolescence and longer than any other imaginative play of childhood.

3. About half of doll-players saved their dolls, and very many more saved them from affection or association than for their value or beauty,—something like forty to seven.

All of which conclusions are contrary to the quoted statement from Sully's "Studies in Childhood."

II. Imaginative Element in Children's Literature.

Taking up questions one and two we find that the teachers are most careful about answering and the males the least so, as is shown in the following facts. It is hardest to classify the teachers' answers, to tell whether they would answer both questions the same. They say most on the subject, and though the great majority like and approve the same literature, many mention other literature also. They are the least precise as to what to read, but more precise as to the object of reading. Statistics on such questions as these are of only comparative value and our results are as follows:

Table I.

	Liked and now approve the *same*. Children's Literature.	Liked and now approve *different*. Children's Literature.	Doubtful.
Female: Teachers, 70,	47%	27%	25%
" Students, 91,	40%	30%	30%
Male: Students, 121,	38%	24%	36%

In spite of indications of lack of thought the males had quite a large proportion of their answers to the two questions decidedly different. This is partly explained by the style of literature which boys devour with so much interest, namely horrible, bloody, exciting stories. However much they enjoyed it, as young men they do not approve it. The female students show less difference between their childhood likes and their mature approvals. In regard to the teachers, I was impressed with the large amount they had to say as to what should be read and why. But I was surprised that it agreed as often as it did with what they did read, but then people's reasons are perhaps as much the result of their opinions as their opinions the result of their reasons, and the older the class of people the more set, perhaps, they become in their opinions. Moreover, there is some good in most any literature and people see the good in that which appeals to their taste. Thus it does not hold true as I had thought and as, I think, the usual *a priori* judgment would be given, viz., that mature judgment would go against the childish taste most often among the teachers, next the female students, and lastly the males.

Out of 282 persons, 121 of whom are males, the answers to questions one and two resulted as follows:

TABLE II.

KIND OF CHILD LITERATURE.	LIKED.	APPROVED.
Fairy Stories	38%	24%
Natural Stories (Real life)	34%	32%
Adventure	23%	12%
History	10%	22%

This table may seem contradictory to the statement already made, that more approved and liked the same than otherwise; but that it is not will be seen by further examination. There is a tendency among those who seem to have been most thoughtful to approve the realistic reading and not the ordinary fancy given to children, which is so easy to write and which they take to so readily. But because this kind has been used for children for a long time and they like it, the thoughtless naturally infer that it is the proper thing for them. Many thoughtful people also approve of it, for what seems to them good reason, but others think this style deficient, and have introduced a new idea, viz., that more pains should be taken with a child's reading, and it should be given something of more value than mere interest, something that would cultivate more talent than imagination or a higher type of imagination than that which has its aim in making as large a lie as possible.

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The truth is many-sided. The reasons given for approving any kind of literature are real ones; the person who gives them sees one side of the truth—the side that appeals to him—and sometimes the very same reason is given for opposite kinds of reading, while more often the same kind of reading is given for opposite reasons. One thinks the child should be given reading along the line of its tastes and talents in order to cultivate those things in which it has most ability. Another approves giving a child what it is deficient in, to cultivate the weaker talents, and make an all-round character. A nnmber of persons advised letting children read "anything they liked," others "nothing at all." One approves vigorous imagination stories, another anything not exciting. One likes and approves humorous stories, and another melancholy ballads. One was especially fond of "Paradise Lost" when a child. One wishes to introduce a child as soon as possible to real life, another to keep him out of it as long as possible. I am convinced that one's own taste and disposition has the greatest influence on his judgment, he thinks that what would have been best for him would be best for all children. Very few seem to have thought that the kinds of literature adapted to different children might be as varied as the children. The results of further classification are given in the following Table III.

TABLE III.

	FEMALES.		MALES.
	TEACHERS, 70.	STUDENTS, 91.	STUDENTS, 121.
Child Literature liked best.	Natural Stories, 42% Fairy Stories, 24" Adventure Stor's, 13" History, 7" Poetry, 4" Bible, 3" Moral Stories, 3" Drama, 1" Scientific, 1"	Fairy Stories, 48% Natural Stories, 36" Poetry, 5" Bible, 4" History, 4" Moral Stories, 1"	Advent're Stori's, 40% Fairy Stories, 23" Natural Stories, 12" History, 12" Bible, 3" Moral Stories, 3" Science, 2" Drama, ½"
Child Literature now most approved.	Natural Stories, 24% History, 18" Fairy Stories, 17" Adventure Stor's, 15" Moral Stories, 13" Nature Stories, 7" Science, 1"	Fairy Stories, 27% Natural Stories, 27" History, 15" Moral Stories, 10" Nature Stories, 5" Poetry, 5" Science, 4" Adventure, 3" Bible, 2" Drama, 1"	Natural Stories, 26% Fairy Stories, 20" History, 20" Moral Stories, 12" Adventure Stor's, 11" Nature Stories, 3" Science, 3" Bible, 1" Drama & Poetry, ½"

TABLE III.—*Continued.*

Child Literature approved because cultivating.	Information,	41%	Imagination,	29%	Information, 32%
	Imagination,	22"	Information,	28"	Imagination, 28"
	Morals,	22"	Morals,	28"	Morals, 28"
	Fitting for Life,	8"	Fitting for Life,	7"	Fitting for Life, 7"
	Amusement,	5"	Amusement,	4"	Amusement, 3"
	To make observing,	1"	Memory,	2"	Memory, 2"
			Make observing,	1"	

Conclusion: The answers show that our informants do not value the exercise of imagination as highly from their adult standpoint as they experienced it in their childhood's reading.

In connection with the answers to an additional question as to the study liked best it appears that those who like and approve fanciful reading are generally those with a more literary taste, while the more practical people, that is, those who like mathematics and the deeper studies, see less value and pleasure in fanciful reading, but like something real. This relationship between literary studies and imaginative reading on one side, and between reasoning studies and real reading on the other is shown as follows.

TABLE IV.
Above Relationship.

		TRUE.	FALSE.	DOUBTFUL.
Female Teachers,	76.	43%	24%	32%
" Students,	62.	50%	21%	32%
Male Students,	97.	51%	16%	33%

Girls with strong mother instinct, as shown in natural and long continued devotion to a doll, generally prefer natural stories. Moreover, as might not be expected it happens that these same girls are the ones that most often prefer mathematics and show other evidences of boyish tastes, but who like girls better than boys.

III. NUMBER AND TIME FORMS.

From the answers to questions 9 to 13 it is safe to say that the majority of people think number and time in some visual form. For we have found but one person who denied having such conception and who did not, after being questioned, admit that he did have such to some extent. In such cases, very likely, the forms originating in childhood have been forgotten. The answers on number and time forms are catalogued in the following Table V.

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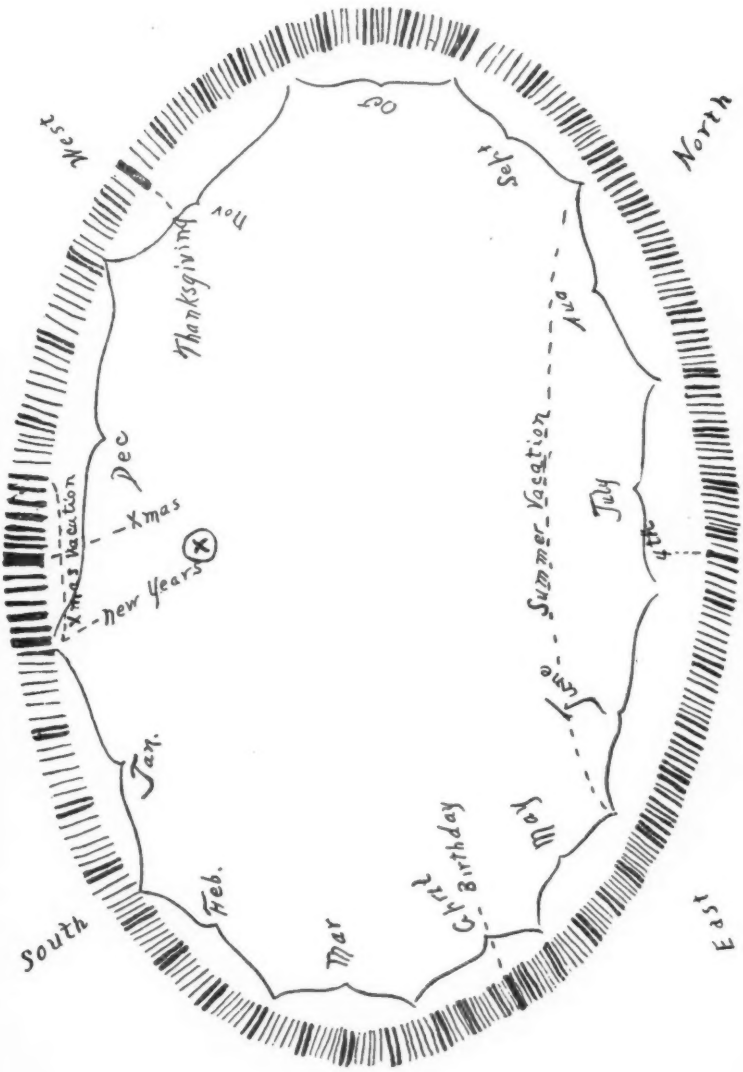
TABLE V.

	Have *Number* Forms.	Have Time Forms.	Have both Number and Time Forms.	See numbers in thinking them, though not in fixed positions.	Colors attached to Numbers or Time.	Numbers have personality.	DESCRIPTION OF FORMS. FOR NUMBER.	DESCRIPTION OF FORMS. FOR TIME.	REMEMBERED ORIGIN OF FORMS.
Female Teachers, 70.	14%	10%	4%	6%	4%	3%	Zigzag line. Horizontal " Ascending " Descend'g " Dots.	Circular. Clock face. Straight line. Curved line. Rectangle.	Cribbage, Authors. Lines like this, ||||||||,—from the way she was taught to count.
Female Students, 91.	19%	32%	12%	6%	3%	6%	Ascend'g line. Horizontal " Broken line to the right and then up.	Circular. Straight line. Undulating "	Clock. Almanac or calendar.
Male Students, 121.	17%	22%	9%	13%	6%	4%	Zigzag line. Right angle. Lines. Squares. Blocks. [umn. Ascending col- Cog wheel.	Circular. Clock face. Line. Rectangle. Calendar. Zigzag line. Irregular "	Arithmetic and Geography for circular forms. Arrangement of the alphabet in book.

It will be noticed that in the time forms the circular, under which is included the elliptical, is first, and the clock face has a prominent place. Doubtless the circular form came from some picture in a geography or other school book. Most people obtain their form when very young, probably when they first think of number and time. One man could date the origin of his time form at 10 years of age.

A greater variety of sources seem to have given rise to the number forms, yet they may all be traced to the method used in teaching or the idea in connection with which they were first thought of. Besides association, the number form may be determined in part by the taste of the persons for certain kinds of forms. I could not get much data throwing light upon this point, but Galton noticed a similarity between a person's writing and his number form. (See Galton: "Inquiry Into Human Faculty." p. 127.) One such remarkable form was, however, returned, which I have called a cog-wheel. The form is in general circular, but studded regularly with cogs, not sharp, but rather undulations. These are not all the same size, but go in groups of three, each three being the same except that which contains thirteen. Each number has its own cog, from 1 to 100, and the former repeats itself in every hundred. The owner of this arrangement is an inventor of mechanical devices.


West
North
East
South
Oct
Sept
Nov
Aug
Thanksgiving
Dec
July
Xmas
Christmas Vacation
New Years
4th
Summer Vacation
Jan.
June
Feb.
May
Mar
Girl's Birthday

The letters of the alphabet arrange themselves in forms in some minds. People who have no forms usually regard them as idiotic, while those who have them cannot see how any one can think without them. I have chosen my own time form as a good illustration of the elliptical form, and I can explain it more at length than any other in our collection. First of all, it is not correct, as I cannot make it so. To my mind it is an ellipse of bright spaces, placed horizontally in black space. There is nothing wrong to my mind's eye in placing March at one end, October at the other, with the Fourth of July and Christmas at the other extremes. But to place it upon paper without making some months disproportionately long taxes my ingenuity. All the days in the year do not appear to my mind's eye at the same time. Prominent days, Christmas and summer vacations are fixed in my picture, and the spaces between these points are filled in with days and weeks. November and January seem a little longer than most of the months, but December does not, although the relative positions of Thanksgiving and Christmas make it necessary for me to so draw it. I have attempted to show by the shading the comparative brightness as it appears to me. Christmas vacation is white and brilliant, and Christmas day is the brightest day of the year. The summer vacation has a sunny brightness, Saturday and Sunday are brighter than school days, and any special date set for pleasure appears in its proper place conspicuous in its brightness. November is the darkest month. The sound of the name has something to do with its brightness, as some words are bright or dark according to the letters of which they are composed. Each day of the week has its own shade of gray. The day begins at the top of the line, and any hour or minute in the day has its position, though I see no lines or letters, but only the shape of the divisions of time with their position and color. When thinking of the form in a general way I am placed within at ⊗. When thinking of the present time I draw near that point in the ellipse, within the ellipse if it is winter, without if it is summer, and view any other time from that standpoint. The form is in a horizontal plane, placed as shown according to the points of the compass. The reason for this comes from my early school life having been passed on the shore of Lake Pipin, Minn., which runs from N. W. to S. E. The size of the ellipse varies according to circumstances, but generally it seems the size of the Lake Pipin Valley. This valley also seems to give the general form, but I think some picture in my geography helped me to make it elliptical.

In some cases numbers present themselves to the mind with something of a character of good or bad, or even of personality.

A very large number of people have pleasant or unpleasant feelings towards many numbers that border on personification.

The coloring of numbers is more common, I think, than would be gathered from the answers, and depends largely upon one's general taste. In my own case my coloring consists of only black and white, which I ascribe to the fact that I am not fond of gay colors.

The teachers have fewer forms than the students, perhaps because they are older and less imaginative, or have given up their forms in calculating and have come to do it "mechanically," as they call it, thus gaining rapidity. For with the answers to questions 11 and 13 it appears that the use of the number form is not conducive generally to rapid calculation, though it does not appear to be as much of a hindrance as I had supposed. 14% add rapidly and visualize their addition (seeing the numbers but not necessarily following a number form). 23% add rapidly and do not visualize. 4% add rapidly and visualize with a number form. 8% add rapidly and visualize without the number form. Altogether 29% visualize their addition, while 15% of these do not add rapidly.

Forms among females are most common among those who take to mathematics and systematic modes of thought, or to art. Among the males they are about evenly distributed. Those persons who have number forms are likely to think in visual images.

IV. Imaginative Sex of Numbers.

Question 10 appeals to some as the most idiotic question that could be asked by a sane person. Yet 118 persons out of 282 answered this question. Not that we suppose that anywhere near that number ever deliberately thought of such a thing before, but having the idea suggested, one kind of number strikes them as being more appropriately feminine or masculine.

Of 69 answers from females:

16 called even numbers male, and odd female;

53 called even numbers female, and odd numbers male.

Of the 16 who called even numbers male 10 gave the following reasons:

9 because even shows strength, and males are stronger;

1 because even is preferred, and males are preferred.

Of the 53 who called odd numbers male 25 gave reasons:

15 because even is preferred, and female is preferred;

1 because odd is preferred, and males are preferred;

4 because odd seems stronger, and males are stronger;

5 because odd is first, and males are first.

Therefore about two-thirds of the females who gave strength

as the reason called even number strong. 94% of those who have preference for odd or even prefer even. 88% of those who founded their sentiments regarding the sex of numbers on a preference for either sex prefer female.

Of 49 answers from males:

22 called even numbers male and odd female;

27 called even numbers female and odd male.

Of the 22 who think of even numbers as male 11 give the following reasons:

1 because females are preferred, and odd is preferred;

5 because males are preferred, and even is preferred;

6 because even is stronger, and males are stronger;

1 because odd is more suited to females.

Of those calling even numbers female 15 give the following reasons:

7 because females are preferred, and even is preferred;

1 because males are preferred, and odd is preferred;

3 because odd is stronger, and males are stronger;

5 because odd is first, and male is first;

1 because even seems feminine.

Therefore two-thirds of those who give strength as the reason called even number strong. About 85% of those who have preference for odd or even prefer even. About 57% of those who founded their sentiments regarding the sex of numbers on a preference for either sex prefer female. The 5 men who called odd male, because first, show an exception to the rule that the preferred sex is even. Besides these main reasons the following have some special reasons: One male replies: "Myself is one, wife makes two." To another even numbers are colored and odd ones white or black, getting this from the use of a checkerboard. There is some tendency to consider the curved numbers female. In two cases the even are male because larger. In three cases odd numbers are male because it was the custom in games, or the boys were so designated in the roll call at school. In one case the digits are females, adding ciphers they become males.

Conclusions:—1. With a large majority the preferred[1] sex (slightly female with the males, and overwhelmingly female with the females) is attributed to the even numbers as being more easily understood, less obscure and distant.

2. The stronger sex is attributed to the even numbers as stronger.

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[1] The word "prefer" is used to mean either actual preference, or feeling of nearness toward, ability to comprehend, or affinity with.

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XUM

HOW A MUSICAL EDUCATION SHOULD BE ACQUIRED IN THE PUBLIC SCHOOL.

By MAX MEYER, Ph. D., Fellow in Psychology, Clark University.

To what intent do we teach music in the schoolroom? Is it to enable every pupil to become a professional musician? Certainly not. Is music taught in the schoolroom because it answers the purpose of giving to the pupil as many opportunities as possible to develop the faculties of the mind, as we learn Greek and Latin merely for the purpose of mental training without any expectation of meeting any one to whom we may speak in Greek or Latin? Nobody has asserted, or probably will assert, that instruction in *music* serves this purpose. There is only one reason for teaching music in the schoolroom: to enable the pupil to enjoy music, to add to all that makes life worth living this one of the most noble sources of delight. And it is this capacity for enjoying the really artistic music that I mean by musical education.

Is it helpful for this purpose to teach the pupil who to play an artificially made instrument, or to use that instrument nature has given to him, his own voice, or to teach him musical theory? It is possible that it will help him to enjoy music if he is capable of playing an instrument by note. But to learn this requires so much time that the public school cannot afford this instruction, but must leave the pupil to get it for himself. What usually is done by the school is to let the pupils sing some songs and learn them thus by heart.

Perhaps it is not to be regretted that there is not sufficient time in the school for teaching the pupils to play an instrument. The majority of them would, in any case, remain bunglers, and, as every one is more or less inclined to think too highly of his own performance, would become accustomed to poor music and satisfied with it, at home and in the concert room too—a condition, of course, not favorable to the development of art. Instead of increasing the doubtful music of dilettantes a greater part of the public should be enabled to enjoy the works of the great composers when performed by a real virtuoso.

Still there remains the important question whether knowledge of musical theory can help one to enjoy music. Here we have to distinguish two sorts of enjoyment, the intellectual and the æsthetic. Intellectual enjoyment results from every mental

process that attains its end. If we succeed in settling difficulties, in solving some problem or other, we are pleased; *e. g.*, if we succeed in recognizing a picture, until then unknown to us, as a "van Eyck," or in distinguishing a harmony we are listening to, as a chord of the Fourth and Sixth. Quite different from this pleasure is the æsthetic enjoyment that results from the perception itself, *e. g.*, from the inspection of that picture, whoever be its painter, an enjoyment that cannot be enlarged nor diminished by knowing its originator, any more than the euphony of a harmony can be altered by the knowledge that it is a chord of the Fourth and Sixth. This æsthetic enjoyment is the only one we have to deal with here, because the intellectual pleasure, depending indeed upon knowledge of musical theory, is not at all a particularly musical one, but belongs to any kind of mental activity.

Now, we have to question what are the psychological conditions of æsthetic enjoyment of music. It is not easy to answer this question. But few investigators can be found who have wrought with success in this special field of psychology—"tone psychology," as Prof. Stumpf has called it. Here are to be mentioned not more than four names, one of them very old: Pythagoras, the Greek philosopher (about 570-500), Rameau (1683-1764), Helmholtz (1821-1894), and Stumpf (born 1848). In addition may be mentioned Riemann (born 1849). Of course many others have contributed to the psychology of music; however, their work is of less importance and without any considerable influence upon the development of tone psychology. Especially the innumerable text books of harmonics are quite worthless regarded from a scientific standpoint. They contain but mere enumerations of harmonies and resolutions of discords used by certain composers. Though the description of facts is the task of science, the facts have to be described not each separately from the others, but each one as a special case under a general law. Such laws are scarcely to be found in those text books. The rules we find there are like grammatical rules. They seem to have been laid down for the purpose that exceptions may be noted too. But rules that admit exceptions can by no means be accepted as scientific laws.

We owe Pythagoras the statement of the law under which certain tones are related to certain others. In cases of simultaneous tones the relation may be called consonance, its absence or—with simultaneous tones—rather its existence in a less degree, dissonance. The discovery of Pythagoras was that the psychological relation to each other of any given tones can be determined quite independently of the ear, so that it can be predicted what psychological effect certain tones will produce. This effect depends on the simplicity or complexity of the ratio

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of the vibration rates, viz., of the numbers of vibrations made by the sounding bodies in a unit of time. However, Pythagoras did not distinguish in detail, as modern psychology attempts to do, the different kinds of psychological effect, using only those two quite general terms: consonance and dissonance. Nevertheless his discovery is the basis of every further investigation in the psychology of music.

After a torpor of more than two thousand years our science returned to a new life. In 1700 the French physicist Sauveur communicated to the "académie des sciences" a series of investigations upon sounding bodies. He gave this science the name acoustics. The further development of acoustics took place in two directions, one more physical, the other more psychological. We have to consider here but the latter.

Sauveur's investigations in acoustics were used by Rameau in his construction of a theory of harmony. This theory, published 1721, was as highly esteemed by some people as it was scorned by others. Rameau started from the fact that a sounding body generally causes us to hear a larger or smaller sum of pitches, partial tones, the vibration rates of which are to each other as 1:2:3:4:5. Now, any harmony may be apprehended, by identifying octaves, as a sum of partial tones belonging to a fundamental tone "1," that need not really be present in the harmony, *e. g.*, C in the chord c′–e′–g′, C=1, c′=4, e′=5, g′=6. Many of his contemporaries attacked Rameau's theory, since they misunderstood it, as if he had required that tone "1" be a real fundamental bass, whereas he meant by it only an ideal one. It is a pity that Rameau did not restrict himself to numerically describing the relations of tones as they are found in harmony and melody, but tried to explain those facts by hypotheses more or less metaphysical. That property of sounding bodies of producing partial tones can hardly be itself—as Rameau thought—the cause of the psychological effect of harmonies.

Helmholtz was less interested in the merely psychological problems than in the physical and physiological ones. So he particularly inquired into the physiological conditions of our auditory perceptions, nevertheless to the great advantage of psychology. Even tone psychology shows us how much the progress of psychology—though far from being identical with that of physiology—depends upon the latter.

It was Helmholtz, who caused it to be generally recognized that a compound air wave after reaching the ear must be resolved into a number of single stimuli, each of them effecting one of the simultaneously heard pitches. However the particular way in which Helmholtz thought this resolution of the air waves to take place, viz., by means of resonators, tuned fibres in

the ear, cannot be any longer maintained, since it contradicts a great number of more recent discoveries. But there is no difficulty in explaining that resolution of air waves by the ear in another way,[1] so that we need no longer be content with the meaningless expression of former times, that the soul was able to distinguish and recognize the most complicated form of waves.

While Helmholtz's work had its center in physiology, Stumpf attempted from the merely psychological standpoint to penetrate into the secrets of auditory perceptions. Nevertheless his work is based upon the results of modern physiology and physics. The results of his researches are embodied in two volumes on "tone psychology" and in some smaller articles; while further contributions are to be expected.[2]

It is a matter of course that the problems there discussed belong to the first elements of tone psychology, and that therefore the outsider who wishes to know the final results of science is not much concerned in them. Nevertheless these investigations are of great value, since a scientific research that rushes immediately upon the final aims without having settled beforehand the important, although less interesting elements, ultimately can conduct but to a seeming success. It may be mentioned that Stumpf has shown that all the attempts hitherto made to explain physiologically or psychologically the relationship of tones in melody and the consonance or dissonance in harmony, including that of Helmholtz, are to be regarded as unsuccessful, and that for the present we must be content with the mere fact of relationship and consonance itself.

Of others who have contributed to the psychology of music I will mention, by the way, only Riemann, whose investigations in musical accentuation seem to be becoming influential in the further development of tone psychology.

After this digression, showing how little has yet been done in tone psychology, we may turn back to our question: what are the conditions of æsthetic enjoyment of music? Doubtless the potentiality of æsthetic effect of music is based upon the property of pitches of being related to each other in different rates, of being more or less consonant. This property has not yet been duly examined, as we saw, but so much is true, that with a quite inconsiderable exception everybody is endowed with the faculty of being affected by musical tones according to their relationship, so that the common expression, this one and that one has no ear for music, can seldom be regarded as justified.

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[1] I have shown this in my paper "Zur Theorie der Differenztöne und der Gehörsempfindungen überhaupt," Zeitschrift für Psychologie, Vol. XVI, pp. 1–34, 1898.

[2] C. Stumpf: Beiträge zur Akustik und Musikwissenschaft.

In accordance with this statement we find that every one, almost without exception, likes to hear single melodies, whether sung or played on an instrument. But in the case of polyphonic music, sonatas, symphonies, etc., we find many people saying they could not acquire a taste for this music. In order to understand this, we have to inquire after the psychological conditions causing the difference in æsthetic effect of music composed for a single voice and of polyphonic music.

Let us assume some one hears a sound consisting of ten tones. What then is the relation of attention to these ten tones?

Usually one takes for granted that our attention can be fixed upon one psychical content only, not simultaneously upon several ones. Although this in the strict sense of the word is wrong, it is right in as far as, lacking particular practice, we are unable to turn our attention equally to several things at the same time. Attention is usually fixed upon one psychical content in a high degree, upon some others but slightly, upon the rest of real sensations not at all.

The unpracticed hearer of these ten simultaneous tones has his attention drawn to only one of them, or, more exactly speaking, to only one pitch. Only one tone sensation possesses sufficient psychical energy to be marked as a certain pitch, all the others lack that energy. But the latter do not remain completely ineffective, but cause what is called the quality of the tone. Which of the ten tones thus overwhelms the others, does not depend upon chance, but upon certain, although not yet quite exactly known, conditions, of which relative intensity seems to be the most powerful one.

Now let us apply this to the hearing of music. Any one—supposing that he is among the slightly practiced average men—hearing a melody sung or played, with a not too complicated accompaniment, will fix his attention on the tones of the melody. The tones of the accompaniment he usually does not mark as pitches, but as a continually shifting quality of tone, belonging to the melody tones. Surely in this case the hearer loses a great deal of æsthetic enjoyment, this being considerably higher when the hearer is able to perceive the accompanying tones as pitches instead of as quality of tone. But the enjoyment of a piece of music still more complicated, *e. g.*, a sonata, is impossible at all to such a hearer, because, in this case, the æsthetic enjoyment is conditioned by discrimination of the single pitches.

We have, therefore, to look for means to help fix attention upon each several tone simultaneously. Then, what we called quality of tone partly disappears; and in its place there is a real plurality of perceived pitches. Only when all the pitches of simultaneous tones really are perceived, has music the power to affect the hearer by all its beauty, by its artistic structure of

auditory sensations in simultaneousness (harmony) and succession (melody). Although this division of the attention to each several tone very often is not possible at all because of the chord being composed of too many tones, it is an ideal to which we have to approach nearer and nearer.

Now, there are various ways to aid the discrimination of simultaneous tones on the part of those who are not so highly gifted as to be capable of giving a divided attention to simultaneous tones without much practice. We may let them listen to each voice of polyphonic music separately and thus commit it to memory. Then in the complete piece of music the different tones of each chord are nearly equally stimulating to attention, and it is not as easily possible for one of them to overpower the others and be the only one perceived as pitch, while the others remain unperceived as pitches and become effective only in the quality of tone.

To learn by heart the single voices is, however, hard work and takes much time. We have, therefore, to look for an easier method of enabling the hearer to turn his attention to the tones which will occur, by having him know what these tones are to be.

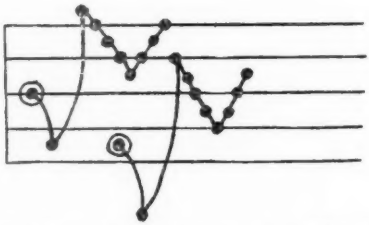
We may call in the aid of visual sensations. We might give the hearer the score, so that he can see at any time how many and which tones he will hear and thus be enabled to pay attention to them. But for this it is prerequisite to have learned to read the score. The great majority of men, however, having no sense of absolute pitch, notwithstanding a perfect knowledge of notes, are unable by seeing a certain note to reproduce an associated corresponding pitch. They are able to conceive a certain pitch only by selecting out of the notes the intervals. Under these circumstances one may think it well to give up the notes entirely and to compose a score of notations of intervals. But in this way a clearly arranged picture of musical forms can hardly be gained. Obviously it is preferable to arrange a picture by means of notations of musical phrases. The number of phrases is of course smaller than that of intervals. Moreover it is far easier—in spite or rather because of the greater complexity—to associate with a certain sign a phrase than a single interval.

A method similar to this has recently been adapted by Hövker, a German teacher of music. He has described his method in an interesting essay, entitled: "Die graphische Darstellung als Mittel der Erziehung zum musikalischen Hören."[1] In order to give his "pictures of musical forms" he keeps in the

[1] Sechzehnter Jahresbericht über das Herzoglich Anhaltische Landesseminar zu Cöthen, 1898.

main the customary musical lines and notes, but rejects with good reason that great number of musical signs which are absolutely necessary for performing music but thwart the purpose of giving the hearer an easily readable programme.

As a specimen of such pictures of musical forms the beginning of a fugue of Bach's is given here.



Hövker uses these pictures even at the first instruction in music in order to call the pupil's attention to the fact that every song, however small and simple it may be, is composed of partial tunes, of phrases. Each phrase is represented by a figure gained by connecting the heads of the notes by means of dashes. Thus the pupil is accustomed to look for the component parts also in the larger and more complicated compositions, and by so doing to cultivate his æsthetic judgment. But still more helpful than for distinguishing the single *successive* phrases are these pictures for clearly perceiving the structure of polyphonic music with regard to the *co-existence* of tones.

Hövker reports to us some instances which prove the value of his method. A slightly talented person, but one who had taken for several years regular instruction in singing, playing and theory, could not acquire any taste for sonatas, symphonies, and fugues, not being able to understand them. By the help of these pictures he very soon became capable of showing the theme on the picture of a fugue in three voices in whatever voice it was heard. Still more surprising are the results in persons who are not acquainted with musical notation at all, and therefore not capable of note reading. Usually after a short practice they become able to associate the single figure with the tune heard and to understand the structure of a whole piece of music by means of these pictures. So when hearing music they know by looking at the picture how to turn their attention in order to enjoy the music.

Thus there appears the possibility of enabling a majority of people to enjoy artistic music without the drudgery of acquiring a perfect acquaintance with musical notation. However, the use of such pictures, although not very difficult, re-

quires some practice to be successful. Not likely to be considered by an adult as interesting in itself, this practice should be acquired during the school years.

I need not explicitly say that I do not reject instruction in singing and playing. But I do not grant that a man may be regarded as musically educated when having acquired only that technical skill. Doubtless it will be advantageous for every pupil to learn to sing and to play; and many better talented ones may acquire even thus a sufficient practice for æsthetic enjoyment of music. But the faculty of *enjoying* music by hearing is far more desirable than that technical skill in itself; and where only one or the other is possible, one should not hesitate to choose this æsthetic capacity.

The system as used by Hövker will not probably prove to be the best attainable. It is the first step on a way hitherto untraversed. But by introducing this system into the public school an opportunity would be given also for its improvement by experience. Furthermore it is often difficult to find out what melodious parts have to be regarded as psychological units and therefore to be represented by a separate figure. I hope that in this respect my own work of analyzing music into the smallest psychological units will prove to be helpful.[1] The application of the psychological theory of music to the practice of teaching is doubtless a promising field for the teacher who recognizes the necessity of improving the method of teaching music.

[1] Elements of a Psychological Theory of Melody, *Psychological Review*, Vol. VII, No. 3, pp. 247–273, May, 1900.

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RIGHTS OF CHILDREN; A STUDY IN JUVENILE ALTRUISM.

By WILL S. MONROE, State Normal School, Westfield, Mass.

A sense of justice, crude and varying at first, gradually develops in the child; and, in facing the problem of the training of the social sense, the educator must distinguish between rights and indulgences. What are some of the rights upon which children insist; at what ages do they insist most strongly on their rights; do boys surrender their rights more readily than girls? Answers to these questions were sought from children themselves. The following story was told to 1,245 young children:

"Jamie's father gave him a dog, but Jamie often forgot to feed it and the dog cried at the door. Then Jamie's father took the dog and gave it to a kind little girl who lived down the street." Who had the best right to the dog—the father, Jamie, or the little girl, and why?[1]

The children tested ranged in age from 5 to 12 years. Special effort was made in this test to get the opinions of the youngest school children, in the belief that such expressions would not only indicate primitive proprietary notions but also indicate the spontaneous moral dispositions of young children. 70% of the girls and 57% of the boys thought that the little girl had the best right to the dog. The following are samples of the replies taking this point of view:

Girl, 8 years. "I think the little girl had the best right to the dog. Why I think so is because the little girl was the last one he gave the dog to. And if you give a thing away you cannot take it back again."

Girl, 10 years. "I think the little girl had the right to keep the dog. Because she could go to the meat market and get some meat for the dog. May be the little boy lived too far."

Three reasons were offered in justification of this assumption. 1. The little girl fed the dog; the little boy had been so cruel as to neglect it, and by his cruelty he had forfeited his proprietary rights. The fact that 44% of the children take this view of the case weakens the position of current pedagogy that the

[1] I am indebted to Professor Earl Barnes for the tests used in this study.

children are by nature cruel. My own studies, as well as those of Professor Earl Barnes, clearly contradict this long accepted dogma. 2. Girls are by nature kinder than boys, say 8% of the boys and 17% of the girls; and, being naturally the more humane, they should have prior rights in the possession of dumb brutes. It is interesting to note that it is the girls themselves mainly who regard girls as kinder than boys. 3. The dog was given to her and therefore she had the best right to have him.

33% of the boys and 20% of the girls say that the father had the best right to the dog, the following being typical of the group:

Boy, 8 years. "I think the father had the right to the dog, because he had the dog and Jamie did not have to buy the dog and the girl did not have to buy the dog."

Girl, 8 years. "The father had the best right to the dog because he was the bigest and oldest."

These children base their judgments upon two facts: (1) The father had paid for the dog, and (2) the greater age of the father would enable him to make a more righteous disposition of the matter than either Jamie or the little girl. In this group we have represented the class of children who recognize wisdom as peculiar to age and extended experience.

A third group of children—represented by 10% of the boys and 6% of the girls—argue that Jamie had the best right to the dog. It was bought for him and given to him. The father had no right to take it from him. This position, strange to say, is taken by the older children. But the sympathy of the children for the suffering dog led most of them to form the opinion that whatever right Jamie might have originally possessed he had forfeited that right by his neglect. The opinions of the third group are represented by the following answers:

Boy, 10 years. "Jamie had the best right to the dog. Because when you give a thing away you can't take it back again."

Boy, 11 years. "Jamie had the best right to the dog. Because the father gave it to him and the father had no right to the dog."

The following story was dictated to 567 boys and 576 girls between the ages of 9 and 16 years: "Hattie Smith's papa was very rich, and bought her very many beautiful things. When Hattie was nine years old she went to live with her aunt Mary, who was very kind to poor people. One day when Hattie was at school her aunt gave her old hood to a poor girl. When Hattie came home she asked, 'why did you give my hood away? it was my hood, my papa bought it for me.' Her aunt Mary told her that her papa had sent her a nice new hood. But

the next day she had to wear the new hood to school, and she sat next to a poor girl who wore her old hood." The children were asked to finish the story and have it end as they thought it should; and the manner in which they had the story end revealed the egoistic and altruistic tendencies of the juvenile writers.

The following endings of the story quite fairly represent the attitude of the children tested:

Boy, 13 years. "She asked for the hood after school, but the poor girl would not give it up. So they fought for it, and the poor girl won, so the rich girl had to wear the new hood all the time."

Girl, 13 years. "Both girls were at once friends, and now they wear the things alike and are happy. The rich girl has learned a lesson from her kind aunt Mary to give to the poor who cannot afford to buy nice things. I hope every child will learn a lesson from this."

Boy, 14 years. "She commenced to tease the poor girl, and the poor girl began to cry; this softened Hattie's feelings so that she made up her mind never to be selfish again."

Girl, 14 years. "She felt above the poor girl when she saw her with the hood on, but yet she was angry to think her aunt Mary had given it away, and so she took it away from her and went home with them both to her aunt Mary, and her aunt humbled her by making her give the new hood to the poor girl, while she had to wear the old one. 'Pride goeth before destruction, and an haughty spirit before a fall.'"

Although altruism triumphed, 46% of the endings were more or less dominated by egoistic impulses. 243 of the children simply represented Hattie in an angry, revengeful mood; 67 had her take the hood from the poor girl by force, and in this the boys led; 81 represented Hattie as persuading the poor girl to return the hood to her; 68 had Hattie go to the cloak room and exchange the new hood for the old one; 24 children represented her as taking the old hood from the cloak room without leaving the new one; and 48 of the children presented Hattie simply as uncommunicative and unsocial with the poor girl—"severely letting her alone."

Those who describe Hattie in a less selfish frame of mind—24% of the boys and 30% of the girls—represent the children in whom sympathy is more or less dominant. Hattie is represented as penitent for her selfishness by 252 of the children; 194 of the children picture her as happy to see the poor girl with the hood; and 164 represent her as not only kind to the poor girl, but as kind and thoughtful of poor children generally in her subsequent social intercourse with her schoolmates.

The egoism of the 46% of the children who represent Hattie

as ungenerous and anti-social is clearly dominated by consideration of rights. Hattie owned the hood; it was her right to keep it if she wanted it; and its disposition in Hattie's absence without her knowledge and consent clearly violates the sense of justice entertained by these young moralists. However false their reasoning may be, their sense of justice is formulated and will not be altered until they are convinced of the rightness of the opposite procedure. Considering the limited range of experience of children, the sense of justice is singularly sensitive and susceptible of extended modification. But whatever they are forced to do, in opposition to what they consider their rights, must unquestionably delay the development of the social sense.

A movement which recognizes this pedagogic principle is the Junior Republic at Freeville, New York. It is an experiment in the education of personal character for social responsibilities. The impulse in which this pedagogic experiment originated was a desire on the part of a young philanthropist—Mr. W. R. George—to give some of the poor children in the slums of New York City a taste of country life on his farm at Freeville. During the hot season, ten years ago, he took 22 children in the country for a two weeks' outing. The next year his caravan numbered 210, and for the two subsequent years the number averaged something over 250. These brief summer camps were under the personal supervision of Mr. George; and besides the recreation and discipline he tried to give them some instruction in religion, patriotism, and certain simple industries.

In his management of the boys, Mr. George was impressed with three marked social characteristics: 1. The keen sense of justice shown by them in all matters of conduct and discipline. 2. The superior power which they possessed for controlling one another. 3. The excellence of their suggestions in matters touching the government and control of the boys. These convictions led him in the summer of 1895 to enlarge his own farm and to organize the boys into a republic with a civil and industrial society, with a congress, with civil and criminal courts, with police and executive officers, with a military organization and a prison, and with a currency of their own, and all the appurtenances of commerce. Mr. George is the self-appointed president of the republic and reserves the veto power, which he uses sparingly. The responsibility of the government rests upon these children of the slums. The constitution of the United States and the laws of the State of New York serve as models for the republic; but the legislative body enacts such laws as may be needed by the community, and enforces them by its own executive and judicial officers. The congressional term lasts only one week, and its representation, like that of the mediæval European cities, is by guilds. There are six

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industrial classes—farming, landscape gardening, carpentry, cooking, millinery, and sewing—and each has representatives in the lower house.

The boys now remain on the farm for two months during the summer; and self support, as well as self government, is one of the economic features of the commonwealth. When a boy arrives at the farm he is assigned work in one of the six industrial classes and he is paid in the coin of the republic in accordance with his efficiency and industry. Out of his earnings he must pay for his board and lodging. A little more than half the day is devoted to work, and the remainder to study and recreation. Here is an experiment in social growth of far reaching pedagogic import. The movement is yet too young to be judged by results; but the principle—self help and self government the larger actualization of the individual through social reactions—is essentially sane and praiseworthy.

The study of rudimentary society among boys made by Mr. Johnson indicates quite clearly parallelism between the genesis of the social evolution of the child and of primitive man. The McDonough Institute is a farm school for orphan boys, and is situated in Baltimore. John McDonough gave eight hundred acres of land to the city of Baltimore in trust for poor boys who should be sheltered and educated at the farm until they reached the age of seventeen years. Mr. Johnson conceived the idea of studying the agrarian customs and institutional instincts of these boys, of which, at the time of his study, there were fifty. He found that at the McDonough School, land tenure, legislation, judicial procedure, and industry were all of a primitive character.

I. The land tenure included: (1) A system of common landholding. Each boy had an equal share to the land and whatever was found on it, such as rabbits, squirrels, etc. There was an annual re-distribution of land. A boy set a rabbit trap in a certain place. No one could remove it for that year; but the next year it could be replaced by another boy's trap. In this we have (2) a system of temporary individual ownership. A rabbit trap was durable and would last many years. We can readily see that it would be easier for one boy to re-set his traps than for another boy to remove it and substitute one of his own. This went on many years and led to (3) a system of permanent individual ownership. Certain boys on leaving the school bequeathed their lands to favorites and it happened that after a time all the land was in the hands of three boys, and we have (4) a system of land monopoly. The other forty-seven boys demurred, and land monopolists gave up some of poorest land.

II. The legislation of the boys was extremely primitive in

character. It resembled the village council. Laws were made only when necessary. Thus they fixed the date for the opening of the harvest, because owing to the selfishness of a few, the main part of the produce had come into the hands of a few.

III. Their judicial procedure, Mr. Johnson concludes, resembles savages. They left the result of a disagreement entirely to chance or luck. Any neglect of duty which inconvenienced the others was immediately punished. They also appealed to bystanders to decide. The whole body of the population declared by word of mouth the right or wrong of the matter.

IV. In the matter of money as mediums of exchange they used eggs, cherries, raspberries, grapes, etc. The transactions became so complicated that the boys lessened the number of payments by verbally transferring their claim from one to another. This embodies the idea of the negotiable note. The extravagance of some of the boys led to the establishment of savings banks. For example, a boy found it impossible to save any amount of money while it was in his own possession, so he confided it to a friend; thus he always seemed poorer to himself than he really was.

These adolescents, as Mr. Johnson points out, in the evolution of their social, political, and economical notions, are repeating the history of their ancestors and of the race itself. "As in the changes of the egg, the embryologist recognizes certain rudimentary features which disappear before both, so the sociologist of human institutions may discover in a company of lads not only the rudiments of primitive society, but the germs of its development. Every schoolboy in his upward way to real manhood represents the evolution of a primitive savage into a civilized being; and every school reproduces the developmental process of human society into some of its most interesting aspects."

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HOME READING OF SCHOOL CHILDREN.

By ARTHUR P. IRVING, West Boylston, Mass.

In order to ascertain what my pupils were reading outside of school I made, not long ago, inquiries in each grade from the fourth to the first year in the high school. This inquiry was made during the fall term, so the children had been in the schools from three to nine years. Each pupil was asked to write a list of the books he could remember having read, to give also the name of the author, and to indicate the book he liked best. About 600 children made such a list. Only 6 failed to do so. Of two boys in the 6th grade one said he had so much to do that he did n't get time to read, the other said, "I reads the murders in the papers." Two boys in the 8th grade had read several books but could n't remember the names. A boy and a girl in the 9th grade said they did n't like to read books.

The following is a summary of the 7th grade lists: No. of pupils 121; boys 61, girls 60, ages 11 or 12 years. No. of different titles given 676; by boys 401, by girls 341. The author was mentioned 72 times.

Largest number of books mentioned by a boy,	31,	by a girl	27
Lowest	"	"	"	"	1,	"	4
Average	"	"	"	"	11.4,	"	11.6

The girls seem to have read more, but a less variety.

Of the 676 titles 504 were given by only one child each or, in other words, only 122 were read by two or more children.

Some of the more commonly read books (included regular readings of Youth's Companion, St. Nicholas and a few others),—

Youth's Companion,	read by	40	boys,	33	girls,	total 73
Robinson Crusoe,	"	32	"	26	"	" 58
Uncle Tom's Cabin,	"	15	"	20	"	" 35
Black Beauty,	"	4	"	26	"	" 30
Five Little Peppers,	"	4	"	13	"	" 17
Longfellow's Poems,	"	5	"	9	"	" 14
Little Women,	"	—	"	15	"	" 15
Rip Van Winkle,	"	6	"	6	"	" 12

Twenty-three books, among which are Old-Fashioned Girl, Peck's Bad Boy, Swiss Family Robinson, Tom Sawyer, Arabian

Nights, Little Lord Fauntleroy, Pilgrim's Progress, and various fairy stories, had from five to nine readers each. The remaining 141 books had from 2 to 4 readers each.

In reply to what books they liked best, 53 titles were given. Of these—

Youth's Companion was given by		9
Uncle Tom's Cabin	" "	5
Five Little Peppers	" "	4
Preferred by one each,		43

Among the last were Around the World in 80 Days, Boys of '76, Optic's stories, Alger's stories, Wild West, Life of Washington, Misunderstood, Little Nugget, Ragged Dick, and Syble's Influence.

The girls had read many of Alcott's, Pansy's and other well known books for girls, a large amount of fairy stories and many odds and ends. The boys seem to have run to adventure stories. Many had read girls' books and anything else they could find.

In the 5th and 6th grade lists are mostly children's books, but Uncle Tom's Cabin had been read by 30 in grade V. In the 8th grade the lighter vein of literature begins to creep in, but, as a rule, only one or two books in a list. In the 9th grade and first year of the High School lists the titles of the juvenile books are, for the most part, forgotten, but the authors of these books are given. In these lists we find the more common books read by adults.

A great many in all the grades testified that they had read many more than they could remember. The boys were very careful to cover up their Jesse James literature. (I happen to know that business in this sort of reading matter is good in this town.) A typical list by a boy of the 7th grade—Huy Harris, Julian Mounator, Dan the News Boy, Three Scouts, Cudjoe's Cave, Travels in the Mountains Series, Travels in the Gunboat Series, Travels in the Prairies Series, Wild West, The Mountain Cave, Gold Magnet, Robinson Crusoe, Cruises of the Snow Bird, Oscar Peterson, Pocket Rifle, Tom Sawyer, Adventures of Huckleberry Finn, Adventures by Land and Sea, Raft Mates, Canoe Mates, Camp Mates, The Deerfoot, Log Cabin, and Afloat series, All Aboard for Lakes and Mountains and for Sun Rise Land, A Trip to Africa, Silver Medal, Soldier Boy.

A list by a girl in the 7th grade—Alice's Adventures in Wonderland, Capt. January, Marie, Melody, Narcissa, Frank Fowler the Cash Boy, Victor Vane, Tony the Hero, Tom Temple's Career, Tan Pile Jim, My New Home, Uncle Tom's Cabin, Jolly Good Times Series, Charlie Bell, Faith Gartney's Girlhood,

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The Purdy Series, by Sophie May, When I Was Your Age, Five Little Peppers Series, Polly, Palace Beautiful, Nan, Rolfe House, Dear Daughter Dorothy, Robin's Recruit, Six Little Rebels, Doctor Dick, Beautiful Joe, Queen Hildegarde Series, Little Women, Little Men, Joe's Luck.

This girl is a bright pupil. She says she picked these books out herself mostly from the public library. She owns very few of them.

Here is an unusual list by a boy of 14 years in the 8th grade —Blue Ribbon, History of Scotland, History of France, Bible and Modern Discoveries, Fred Markham in Russia, Zig-Zag Journeys in Classic Lands, Zig-Zag Journeys in Northern Lands, Zig-Zag Journeys in Antipodes, 20,000 Leagues Under the Sea, Ants Bees and Wasps, Rob Roy Canoe on the Baltic, American Wonderlands, History of the English Language, At War with Pontiac, History of Greece, Origin of Species, Natural History of Selborne, Environs of London, Environs of Paris, Ten Great Religions, Story of the New World, Geography of the Heavens, The Solar System, Geological Excursions, Heroes of the Dark Continent.

At the other end of the scale is this list by a girl in the 9th grade—Witch Hazel, Lena Rivers, Thrice Wedded, Esther the Fright, The Gypsy's Daughter, Broken Wedding Ring, and others she could n't remember. This girl owns none of these books. She "just ran across them."

After studying these figures and lists it seems plain that there is far too much aimless, wasted reading among our young people at the very age when right example is so important. Something can and must be done to direct this work. The home, the school and the libraries, both Sunday School and public, ought to give this matter serious and scholarly consideration. Less reading matter, but of the right sort, is needed. Children need to own their books for reading and re-reading. Discriminate and tactful direction of the reading of children by those in charge is of the greatest importance.

BOOK NOTES.

G. S. H.

Report of the U. S. Commissioner of Education. Vols. I–II, 1897-98. Washington, 1899. pp. 1280.

These ponderous volumes are on the whole, the best that have ever proceeded from the Bureau of Education. In his introduction the commissioner follows the plan of the *Pedagogical Seminary* by briefly summarizing the scope of each of the long articles that follow. The History of the German School System is a valuable treatise in itself, especially when supplemented as it is by chapters on Education in Great Britain, and Ireland, Canada, British Provinces and Central Europe. Other interesting sections describe Education in the Argentine Republic, Uruguay and Brazil, Cuba, Porto Rico and the Philippines, the Public School and the Public Library, Physical Training, Summer Schools in England, Scotland, France and Switzerland, Child Study, etc.

Principles and Method of Teaching Derived from a Knowledge of the Mind, by JOHN W. DICKINSON. Emerson College of Oratory, Boston, 1899. pp. 209.

The author, long the head of the public school system of Massachusetts and fonder of his philosophy than anything else, here prints it after many years of incubation and lecturing to teachers. It is better on the whole than many expected, and is essentially a treatise on the philosophy of the mind with very little, directly or indirectly, about teaching in it. It moves in the sphere of definitions, classifications, terms and tabulations. It is written with such care and so high a sense of the importance of the work that criticism is painful and almost impossible, but when one forces the mind through its desiccated sentences, and reflects what kind of a book might have been written on the subject, the quality of it appears in a striking light.

Edward Thring: Life, Diary, and Letters, by GEORGE R. PARKIN. The Macmillan Co., New York, 1900. pp. 518. Price, $2.00.

Thring was certainly the most original and striking figure in England in the schoolmaster world of his time. His defiance of tradition, and his life-long fight against current tendencies in education which were strongly intrenched in the most conservative of all countries save China, ensured antagonism, while his plain self-sacrificing devotion to work, and his many innovations, made him many ardent friends. The letters, which constitute so large a part of the book, are amazingly frank and interesting.

Life and Times of William E. Gladstone, by JOHN CLARK RIDPATH. The Jones Brothers Publishing Co., Cincinnati, 1898. pp. 639.

This is an unusually elaborate and carefully prepared story not only of Gladstone's life in its narrower relations, but of the great events in English history in which he was an actor. It is a subscription book, and illustrated by perhaps a hundred interesting cuts.

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Cuore: An Italian Schoolboy's Journal, by EDMONDO DE AMICIS. Translated by Isabel F. Hapgood. Thomas Y. Crowell and Co., New York and Boston, 1887 and 1895. pp. 326.

Eight or ten letters a month during an entire school year, which purport to have been written by an Italian schoolboy, but evidently were written by a mature and cultivated man seeking to put himself back into his school days, constitute this book. The favorite headmaster is an ideal teacher, and his morning talks on current events are full of wisdom and patriotism. There is less said of the actual studies, but the character of many of the boys stand out from these pages in very clear relief, and the out-of-school events, like fights, soldiers, accidents, home incidents, and excursions, present a most attractive as well as a vivid picture of Italian school life.

Abbottsholme, by CECIL REDDIE. George Allen, London, 1900. pp. 640.

We have here at last an exhaustive history of this unique and new foundation previously mentioned in our pages. It was founded in 1889, and is dedicated to Principal Reddie's teachers, colleagues, helpers, and to the graduates of the school. Besides his own portrait and that of Dr. Lietz, thirty other full-page cuts illustrate plans of the building, grounds, the outdoor occupations of the boys, etc. The author has not scrupled to print various criticisms from distinguished French, German, and other visitors.

Educational Reform: The Task of the Board of Education, by FABIAN WARE. Methuen & Co., London, 1900. pp. 139.

We have here a valuable characterization of present conditions, recent changes and tendencies in primary education in England, with chapters on higher technical and agricultural education, board organization, teachers, registration, etc.

Leçons d'Anthropologie Philosophique, ses Applications à la Morale Positive, par DANIEL FOLKMAR. Schleicher Frères, Paris, 1900. pp. 336.

The author, a former student at Clark University and later Lecturer on Sociology at the University of Chicago, and last year Professor of Anthropology at the new University of Brussels, presents ten lectures he there gave on the end and task of philosophical anthropology, its dimensions, the classification of human activities, methods and matter, critique, race, individual, primary and secondary activities, synthesis and hypothesis, and applied anthropology as a positive system of morals.

Colonial Civil Service. The Selection and Training of Colonial Officials in England, Holland and France, by A. LAWRENCE LOWELL. With an Account of the East India College at Haileybury (1806–1857), by H. Morse Stephens. The Macmillan Co., New York, 1900. pp. 346.

Thoughtful men agree that the United States should establish a good civil service in the Philippines, and with this in view the present work has been composed. It deals with the history of recruiting methods, with the various items of examination, gives a full description of the colonial school in France, and discusses the possibility of a special college here fully recognizing that the English system can never be adopted in this country.

Essays on Social Topics, by LADY COOK. Vol. I, pp. 284. National Union Publishing Company, London.

Nearly all Americans whose memory goes back twenty years will recall Victoria Woodhull, concerning whom much was said in the papers in connection with Theodore Tilton and others at the time of the Beecher trial, and her younger sister, Tennessee Claflin. The latter, it will be remembered, married an English nobleman. Both held and advocated in the press and otherwise very advanced views concerning the sphere and liberties of women. This book contains over thirty papers by the younger of these sisters on a wide variety of topics, which are full of the old spirit of liberty.

An Ethical Sunday School: A Scheme for the Moral Instruction of the Young, by WALTER L. SHELDON. The Macmillan Co., New York, 1900. pp. 206. Price $1.25.

The author, well known in ethical culture and free religious circles, attempts to describe the system he has been working out in his own St. Louis Church. He describes a religious service for the young, the contrast between his and the conventional Sunday School, the way they study the Bible, habits, the home, the life of Jesus for the young, duties to self, and basal religious beliefs. There is much that is very suggestive in the book, but the scheme seems to the writer to lack cohesion because not based upon any definite conception of the nature and needs of youth and childhood.

One Year of Sunday School Lessons for Young Children. A Manual for Teachers and Parents, by FLORENCE U. PALMER. The Macmillan Co., New York, 1900. pp. 226. Price, $1.00.

These lessons for young children are on good cheer, obedience, Easter, readiness, service, the church, sabbath, loving care, let others be first, and Christmas—so subdivided as to have one topic and one illustration and perhaps a song for each Sunday in the year. The work appeals to the writer of this notice as an admirable illustration of current methods better adapted within its modest sphere for effective work on its premises than any he knows, but he believes the premises and current methods to be wrong.

Bible Stories, by RICHARD G. MOULTON. Old Testament. pp. 310. New Testament. pp. 130. The Macmillan Co., New York, 1899.

These two volumes of stories are intended as a ground plan of Bible history. There is nothing to insinuate any doctrinal instruction, and these are introductory to the author's other larger and better known Bible Stories.

Christian Mysticism, by WILLIAM R. INGE. Charles Scribner's Sons, New York, 1899. pp. 379.

These eight lectures describe the mystic elements in the Bible, mystic Platonism east and west, practical and devotional, and finally nature mysticism. Interesting appendices are devoted to the Greek mysteries, the deification, the Song of Solomon.

Faith-Healing and Christian Science, by ALICE FIELDING. Duckworth and Co., London, 1899. pp. 214.

After distinguishing at great length between Faith-Healing and Christian Science, the author describes briefly a number of hysterical epidemics, such as the "shakers," "jumpers," "black death," "St. Vitus dance," "tarantism," etc. This is followed by a section on mental therapeutics, and another on testimony.

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Christ in Creation and Ethical Monism, by AUGUSTUS H. STRONG. The Roger Williams Press, Philadelphia, 1899. pp. 524.

This is mostly a republication of papers from various periodicals. The work is more or less autobiographical, and consists of a series of guesses at truth. God's self-limitation, modern tendencies in theology, fall and redemption, history of the doctrine of state and church, decrees, qualification for the ministry, Renan, Finney, resurrection, eternal punishment, are the chief topics discussed.

The Great Law, by W. WILLIAMSON. Longmans, Green and Co., London, New York and Bombay, 1899. pp. 431.

This is a study of religious origins and of the unity underlying them. The chief topics treated are symbolism, the birth of the Saviour, death, resurrection, the ark in its various aspects, solar symbols, tree and branch sacraments, blood covenants, trinities, early races, ideas of God, modern standards of conduct, solar myths, second birth, and sacrifice.

The Shorter Life of D. L. Moody, by PAUL D. MOODY and ARTHUR P. FITT. Vol. I. His Life. pp. 124. Vol. II. His Work. pp. 122. The Bible Inst. Colportage Association, Chicago, 1900.

These two paper booklets give very interesting accounts of this great evangelist and his work from boyhood to his death. They are illustrated.

Experimentelle Beiträge zur Lehre vom ökonomischen Lernen, von LOTTIE STEFFENS. Zeits. f. Psy. u. Phys. der Sinnesorgane. Sonder-Abdruck, Bd. 22. pp. 321-382.

The author notes on various persons the shortest time required to learn lines of well known verses under various conditions, and by a very ingenious graphic method shows the errors most frequent. The work is too technical to be fully described, but its importance for the psychology of education is very great.

Die Lehre von den Stufen des Unterrichts bei Johann Friedrich Herbart, von NICOLAS TONTSCHEFF. O. Schmidt, Leipzig, 1899. pp. 57.

In this dissertation we have an admirable precise statement of the Herbartian studies with special consideration of the debated points, the application of the doctrine and its nature.

Interest in Its Relation to Pedagogy, by WILHELM OSTERMANN. Edited by Edward R. Shaw. E. L. Kellogg and Co., New York and Chicago, 1899. pp. 150.

Ostermann's monograph on this subject is probably the best on Herbartian lines, and it was a happy thought to translate it into English. A few notes with more modern references are added.

Essays on the Foundation of Education, by J. GODRYCZ. Lawrence and Van Buren Printing Co., Lansing, Mich., 1900. pp. 168.

These papers are very general discussions of intellectual, religious, moral and physical education; methods of teaching history; and international and civil law. The papers are interesting, but the author does not seem to have felt it necessary to study recent works on pedagogy.

Das Pathos der Resonanz, von OTTO LYON. B. G. Teubner, Leipzig, 1900. pp. 202.

Under this quaint title modern art, genius, and the relations between individual and social philosophy, are discussed.

Handbook of British, Continental and Canadian Universities, with Special Mention of the Courses Open to Women, Compiled for the Graduate Club of Byrn Mawr College, by ISABEL MADDISON. The Macmillan Co., New York, 1899. pp. 174.

This tasteful second edition might be called "The Woman's Minerva of European Universities." The information concerning each is ample.

Lectures, by JOHN L. STODDARD. Balch Brothers Co., Boston, 1898.

In ten volumes this well known lecturer publishes his material and many hundred of his best illustrations at the rate of from one to three on every page. Those who have felt the charm of his lectures will find the same in these tasteful volumes. Mr. Stoddard has always had a fine eye for artistic scenes, and in these volumes has left his monument.

The Story of Nuremberg, by Cecil Headlam. J. M. Dent & Co., London, 1899. pp. 303.

This is an unusually interesting and copiously illustrated work and in some respects a model guide book. The chapters on Albert Dürer, on Hans Sachs, and especially on the great national German museum with its over eighty rooms, a vast pedagogical monument in the larger sense of that word, are of rare interest.

Hawaii and Its People: The Land of Rainbow and Palm, by ALEXANDER S. TWOMBLY. Silver, Burdett & Co., New York, Boston, Chicago, 1899. pp. 384.

The writer has sought to present a history of Hawaii for young readers both reliable and interesting. The author spent six months in the islands by way of preparation, and has devoted a generous portion of the book to the interesting mythology of the natives. Two or three score of illustrations add materially to the interest of the book.

Music and the Comrade Arts: Their Relation, by H. A. CLARKE. Silver, Burdett & Co., Boston, New York, Chicago, 1899. pp. 128.

The writer sought to present the mutual relations of various arts and particularly their connection to science. Although based on the latter, its higher forms are subject to æsthetic law, which psychology may some time formulate. The one unifying principle of all art is form.

Richard Wagner Der Dichter und Denker, von HENRI LICHTENBERGER. C. Reissner, Dresden und Leipzig, 1899. pp. 571.

We have here a comprehensive account of Wagner's childhood and youth, his first opera, Rienzi, his experience in Paris, his life in Dresden where his reform ideas took shape, and where the Flying Dutchman, Tannhauser and Lohengrin were written, and his revolutionary scheme culminated. The third book is occupied with his exile and the triology, and finally his work in Beyruth is described. It is the best and most comprehensive of the Wagner literature.

Richard Wagner als Erzieher. Von ALEXANDER WERNICKE. Langensalza, H. Beyer u. Söhne, 1899. pp. 128.

This booklet is made up of pleasing and rather light chapters on the education of the personality by means of art, the nature of the music drama and its historical necessity, the personality and world view of Wagner and his presentation of it in art.

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A Hundred Fables of La Fontaine, with Pictures by PERCY J. BILLINGHURST. John Lane, London and New York, 1900. pp. 202.

This is an elegant though inexpensive edition done into English verse, each fable occupying a page and faced by a full page illustration.

Handbook of Domestic Science and Household Arts for Use in Elementary Schools, by LUCY L. W. WILSON. The Macmillan Co., New York, 1900. pp. 407. Price, $1.00

Here we have a really good book upon this subject adapted for use as a teacher's manual. The first chapter considers the house and home and next the kitchen. Miss Marlatt contributes an interesting chapter on starchy foods; Mrs. Wilson on foods in general, cooking, drinks, with an advanced course. There are special chapters on fish, oysters, etc., the dining room, bread, pastry and cake, bed room, laundry, household pests, cleaning, mending, and sewing.

Abraham Lincoln. By CARL SCHURZ. *The Gettysburg Speech and other Papers.* By ABRAHAM LINCOLN. The Chautauqua Press, New York, Cleveland and Chicago. pp. 100.

This, with its testimonies by Emerson, Whittier, Holmes and Lowell, makes a convenient school and hand book.

Songs of All the Colleges, Including Many New Songs, by DAVID B. CHAMBERLAIN and KARL P. HARRINGTON. Hinds and Noble, New York, 1900. pp. 218.

This is an attractive volume and is to be followed by four others on the same plan and price, devoted respectively to northern, southern, western and eastern colleges.

The Red Cross in Peace and War, by CLARA BARTON. American Historical Press, 1899. pp. 703.

This is an interesting and copiously illustrated subscription book giving in a very interesting way the work of this beneficent organization, ending with the close of the Cuban war.

Greek Melic Poets, by HERBERT W. SMYTH. The Macmillan Co., New York, 1900. pp. 564.

The text of these fragments from many authors, known and unknown, occupies less than a quarter of the volume. The first quarter and the best is devoted to characterizing twenty-one styles of poetry,—namely, those addressed to the gods, men, and both. The last half of the book is devoted to very typical philological notes, and an appendix contains skolia attributed to the sages, and the music of two hymns to Apollo.

Lessons in Elementary Physiology, by THOMAS H. HUXLEY. Edited for the use of American schools and colleges, by Frederic S. Lee. The Macmillan Co., New York, 1900. pp. 577. Price, $1.40.

Few books have been more extensively and carefully revised than these lessons since they appeared in 1866—first by Huxley himself, then by Foster and Lea, and now by Lee. The changes necessary to adapt an English book to American students are considerable, but these have been made with piety to the original as a true labor of love. It now seems to have certain advantages over others well known in the field.

A Manual of Zoölogy, by T. JEFFREY PARKER and WILLIAM A. HASWELL. The Macmillan Co., New York, 1900. pp. 563. Price, $1.60.

This concise text book, with 327 cuts, is adapted from the English edition to suit the requirements of students in the high school classes

and to some extent in the junior classes of the university. A great reduction has been made, chiefly in limiting embryology, omitting all extinct groups, and dropping certain classes of animals. The work, as it now stands, is certainly a model of compactness.

The Confessions of an English Opium-Eater, Being an Extract from the Life of a Scholar, by THOMAS DE QUINCEY. Edited with Introduction and Notes by Arthur Beatty. The Macmillan Co., New York, 1900. pp. 211. Price, 25 cents.

This is certainly a marvel of taste, cheapness and scholarship.

The Temple Primers. The Macmillan Co., New York. Price, 40 cents each.

Dante, by EDMUND G. GARDNER. pp. 159.
Ethnology, by MICHAEL HABERLANDT. Translated by J. H. Loewe. pp. 169.
The Civilization of India, by ROMESH C. DUTT. pp. 146.
The Greek Drama, by LIONEL D. BARNETT. pp. 114.
Roman History, by JULIUS KOCH. Translated by L. D. Barnett. pp. 160.
A History of the English Church, by H. D. M. SPENCE. pp. 250.

These booklets are models of good taste, good editing, and cheapness. One, like the Ethnology with fifty-five cuts, is copiously illustrated. The subjects too are well chosen, and the motto of the Encyclopedic Temple Primer Series "condensed information introductory to great subjects by leading authorities" is well lived up to.

Athalie, by JEAN RACINE. Edited with Introduction, Notes and Index by H. W. Eve. Univ. Press, Cambridge, and The Macmillan Co., New York, 1899. pp. 155. Price, 50 cents.

The press series of which this is a sample is widely and well known in England. This is an attractive volume, about half of which consists of notes and an introduction.

Stick-and-Pea Plays: Pastimes for the Children's Year, by CHARLES S. PRATT. Lothrop Publishing Co., Boston, 1899. pp. 112.

It is certainly interesting and quite remarkable to see how many different things can be made by half-boiled peas and toothpicks, and how many things these can be called by a little stretch of the imagination. Even a bicycle, yacht, turkey, cradle, and Christmas trees, can be thus made in ways pictorially shown here.

Helps to the Study of Classical Mythology for the Lower Grades and Secondary Schools, by BENJAMIN L. D'OOGE. George Wahr, Ann Arbor, 1899. pp. 180.

These helps consist of very copious references not only to standard works but to magazine articles on myths in general, those of creation, gods of Olympus, earth, water, heroes, etc. There is a good classification of nature myths, and finally a suggestive book list for the grades.

Topics on Greek and Roman History, by ARTHUR L. GOODRICH. Intended for Use in Secondary Schools. The Macmillan Co., New York, 1900. pp. 98. Price, 60 cents.

The topics include the whole field of Greek and Roman history. Nearly one hundred books given at the outset are the basis for the references upon each topic. There is some adaptation to the conference report of the Committee of Ten, adjustment to recitation or written exercises, and to more elementary and advanced work.

XUM

Old Norse Stories, by SARAH P. BRADISH. American Book Co., New York, Cincinnati, and Chicago, 1900. pp. 240.

Miss Bradish here tells about thirty-five of the most important stories of Old Norse legend for children. Those I have read seem to be very well told.

First Book Home Geography and the Earth as a Whole, by RALPH S. TARR and FRANK M. MCMURRY. The Macmillan Co., New York, 1900. pp. 279. Price, 60 cents.

This is a very suggestive combination of work by an expert geologist and pedagogue, with 224 cuts, a number of maps, and an appendix with considerable statistical information and plenty of references for further study.

First Reader for Use during the First School Year, by NORMAN F. BLACK. The Macmillan Co., New York, 1899. pp. 141. Price, 30 cents.

Script forms precede and the transition to print is gradual. Diacritical points are made very prominent. Fairy tale material is used in the latter part.

BOOKS RECEIVED.

AREY, ALBERT L. Elementary Chemistry for High Schools and Academies. The Macmillan Co., New York, 1899. pp. 271. Price, 90 cts.

COMPAYRÉ, GABRIEL. Entwicklung der Kindesseele. (Int. Päd. Bibliothek. Herausg. von Chr. Ufer. Band I.) O. Bonde, Altenburg, 1900. pp. 460. Price, in paper, Mk. 8.

GILBERT, GEORGE H. The Student's Life of Jesus. Third edition revised and enlarged. The Macmillan Co., New York, 1900. pp. 418. Price, $1.25.

HAUF, WILHELM. Der Scheik von Alessandria und seine Sklaven. Edited with notes and vocabulary by Walter Rippmann. The Pitt Press Series. The Macmillan Co., New York, 1900. pp. 183. Price, 60 cts.

HORNEFFER, ERNST. Nietzsches Lehre von der Ewigen Wiederkunst und deren bisherige Veröffentlichung. C. G. Naumann, Leipzig, 1900. pp. 84.

JEBB, R. C. Humanism in Education. The Romanes Lecture, 1899. The Macmillan Co., New York, 1899. pp. 43. Price, in paper, 80 cts.

MACDOUGAL, DANIEL T. The Nature and Work of Plants. An introduction to the study of botany. The Macmillan Co., New York, 1900. pp. 218. Price, 80 cts.

PAPE, GEORG. Lotzes Religiöse Weltanschauung. C. Skopnik, Berlin, N. W., 1899. pp. 93.

RICE, J. M. The Rational Spelling Book. Parts 1 and 2. American Book Co., New York, 1898.

SMITH, JEANIE O. Blackie's Diary. New York, 1899. pp. 97.

WARD, EDWARD G. The Rational Method in Reading. Third Reader. Silver, Burdett and Co., New York, 1899. pp. 174.

WARNER, FRANCIS. The Nervous System of the Child: Its Growth and Health in Education. The Macmillan Co., New York, 1900. pp. 233. Price, $1.00.

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